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SOME OF THE OBJECTIONS TO THE HARRISON BILL.

AT the time this is written (November 15) word comes from Washington that the so-called Harrison Bill (H. R. 6282), which has so long slumbered peacefully in committee, is about to be dug up and placed on the Senate Calendar, though it does not seem possible that the measure can be finally disposed of during the present session of Congress.*

It is well understood that under our dual form of government each state has exclusive jurisdiction in police matters, or the power to regulate its own internal affairs without outside interference, so far as such regulation does not affect the rights of other states or the rights of the Federal Government.

This supremacy of the state in policing its own affairs is qualified, however, by the fact that Congress has power to levy taxes within the states, and to regulate interstate commerce, and in the exercise of these two powers may incidentally interfere to a material extent in strictly *intrastate* affairs.

In consequence of the constitutional limitations upon the powers of Congress it was necessary to construct the Harrison Bill so that it would constitute either a regulation of interstate commerce or a measure for the creation and collection of internal revenue.

For what seemed to be good and sufficient reasons it was decided to draught it as a revenue measure, and as such it must mainly be construed, although the

*An analysis of the bill was given in an editorial in our July issue, pages 818-821, to which the reader is referred for more detailed information concerning its various provisions.

validity of some of its minor provisions rests upon the power of Congress to regulate interstate commerce.

Considering the difficulties natural to the draughting of a bill dealing with such an important subject, and at the same time keeping within constitutional limitations, it is not remarkable that there should be some radical differences of opinion as to the efficiency or expediency of its several provisions. Consequently, while holding the views expressed below, the writer does not intend to reflect upon either the honesty of purpose or good judgment of any who may hold quite different opinions.

The idea kept in mind by the National Drug Trade Conference in draughting its modification of the original Harrison Bill was expressed in the resolution adopted at the second meeting of that Conference, April 9, when it was resolved:

"That it be the sense of this Committee that the bill is not intended, and ought not to be intended, to regulate sales to consumers, but only to trace habit-forming narcotic drugs to the hands of the last distributor, and that the regulation of the sale of such drugs to the consumer in intrastate commerce should be left entirely to state, territorial and other local laws."

This idea of non-interference with the police powers of the state was adhered to throughout, and is the idea which was also in mind when the resolution of the A. Ph. A., adopted at Nashville, was draughted, which says:

"That the American Pharmaceutical Association endorses and approves the Federal measure known as the Harrison Bill, H. R. 6282, * * * * * * * as a reasonable and effective measure to provide the means of tracing the principal habit-forming narcotic drugs from the time of their introduction into the United States until they reach the hands of the physician and the retail druggist."

With this thought before us let us consider how well or how illy the expressed purpose of the bill is carried out.

Section 1 provides that, "every person who produces, imports, manufactures, compounds, deals in, dispenses, sells, distributes or gives away opium or coca leaves, or any compound, manufacture, salt, derivative or preparation thereof shall register with the Collector of Internal Revenue of the District" as a "dealer" in the said drugs, and pay a special tax of *$1.00* per annum.

It will be observed that, by its terms, this section requires physicians to register if they dispense, sell or distribute any of the articles covered by the Act,* but that it does not require them to register if they merely prescribe them, since a prescription addressed to a druggist for the delivery of a drug could not be regarded as a dealing in the said drugs any more than the delivery of a check on a bank could be construed to be the conduct of a banking business.

To this extent, then, the bill tends to encourage physicians to prescribe rather than dispense, but since all physicians are compelled to dispense the named drugs on occasion, it is practically necessary that they be registered as dealers.

It will be observed also that there is nothing in this section to prevent any person from registering as a dealer, upon the payment of the one dollar tax, and thus be entitled to obtain the official order blanks provided for in the following

*i. e.—If they dispense them in larger proportions than the excepted quantities specified in Section 6.

section, and thereby be able to secure any quantity of the narcotic drugs, and either use them himself, or dispose of them to any other person who is also registered as a dealer.

This liberty of registration has caused some persons to hastily condemn the bill as worthless, losing sight of the fact that its expressed purpose is only to trace the drugs in commerce, and of the further fact that the Federal Government cannot accept the tax from some persons and refuse to accept it when tendered by others, and that it cannot control the *intrastate* sale of these drugs any further than such control is necessary for the collection of the prescribed tax. If the bill went beyond these limits and attempted to limit registration to certain classes of citizens, or to control the sale of the drugs to any greater extent than necessary to insure the collection of the tax, such provisions would not only be void in themselves but might have the effect of rendering the entire act unconstitutional and void.

While the theory of the bill is thus to trace and not to control sales, it will, if enacted, have a strongly deterrent effect through the requirement of registration, the use of the official order blank and the publicity and exposure which it provides. The physician or druggist who is willing to sell "dope" on the sly will hesitate when he knows that every fraction of an ounce which he buys can be traced to him, and that the state or other officer acting under local law may ask him for an accounting of the manner in which it has been distributed. Of course, if the state laws are inefficient, or if the local authorities are lax in their enforcement, the main object of the Federal enactment will be largely nullified, but the responsibility would not rest with the Federal Act. In other words, it will be "up to" the states to see that the good effects of the national law are realized.

Section 2 provides that, except as provided below, the sale, delivery, etc., of the named drugs can be made only on an order written on an official form obtainable from the Collector of Internal Revenue of the district, and consequently no one can purchase the drugs unless he has registered as a dealer and procured the necessary order blanks. The original order must be preserved by the person who supplies the drug, and a copy must be preserved by the person who gives the order for a period of two years, and both the order and copy must be open at all times to inspection by Federal officers and agents, and by officers charged with the enforcement of any state law or local ordinance regulating the sale of narcotic drugs.

Three classes of cases are provided where the use of the official order blank is *not* required:

(a) In the dispensing or distribution of the drugs by physicians, dentists or veterinarians, registered under the act, in the course of their professional practice only, and only when personally attending upon the patient to whom dispensed.

(b) In the sale, dispensing or distribution by a pharmacist in pursuance of a written, signed and dated prescription issued by a physician, dentist or veterinarian, registered under the act, the prescription to be preserved for two years, and open to inspection by the same officials as are entitled to inspect the preserved orders and copies provided for in the first part of the section.

(c) To the sale, exportation or delivery of the drugs to persons residing in

a foreign country, who for obvious reasons could not register as dealers in the United States.

Among the objections which have been offered to exceptions "a" and "b" are the following:

It is claimed that they discriminate unjustly between physician and pharmacist by permitting the latter to dispense only on an order written on the official form, or on a prescription, while the physician may dispense without either, the inference of this objection being, either that the pharmacist should be relieved from the official order blank and prescriptions requirements, or else that the same requirements should be imposed upon the physician, dentist and veterinarian. To this it may be answered:

First. That it certainly cannot be considered much of a hardship to require the pharmacist to preserve his prescriptions for narcotic drugs, since he would do that anyway as a detail of professional practice, and besides, the state law would make the requirement if the Federal law did not.

Second. It would be unjust to require the physician, dentist, or veterinarian to demand either a prescription or order blank from their patients. In most cases it would be impossible for such patients (always in the case of the veterinarian) to furnish these, and besides patients are not dealers but consumers, and the theory of the bill is to leave the distribution of the drugs to consumers to the regulation of state laws.

It is furthermore claimed that the discrepancy in the manner in which pharmacist and physician may sell constitutes a sufficient inequality in the operation of the law to make it unconstitutional. But this does not seem to necessarily follow. The bill does not prevent the pharmacist from selling to exactly the same persons that the physician may sell to, but only provides for a *different method of evidencing the sale.*

Until the Supreme Court shall have passed upon the matter, it would not be wise to assert unqualifiedly either that the law proposed by the bill would be unconstitutional, or that it would not. In nearly every case it decides the United States Supreme Court finds itself in opposition to the strongly asserted opinions of one-half of the lawyers engaged.

Without making any strong assertions either way, there are certain considerations that may help us to estimate the probable view of the courts:

First. The presumption is always in favor of the constitutional validity of an act, and courts will not declare a law invalid because of trivial or frivolous reasons, i. e., for reasons which do not work a positive hardship, or do not tend to establish a dangerous precedent, or do not plainly infringe some well defined principle of constitutional law.

Second. The tendency of courts is to give a liberal construction to the exercise of legislative powers for the protection of public health or public morals, and no one would be likely to deny that a restriction upon the privilege of the druggist to sell habit-forming drugs would be in the interest of both public health and morality.

Third. A court could hardly fail to recognize the fact that the druggist has no business to sell habit-forming narcotic drugs direct to the general public, and would be apt to tell him so, and moreover the druggist would have to admit that

to deprive him of the opportunity of selling such drugs except on prescription was, after all, a trivial matter, if his sales were for legitimate purposes. If his sales were not for legitimate purposes, he would have no right to appeal to the courts to protect him.

Fourth. A similar, or even greater, inequality exists in the liquor tax license law which passes unchallenged. For example, Druggist A., having paid a retail liquor dealer's tax, buys a barrel of alcholic liquor, and may sell it (so far as the Federal law is concerned) to any one, either mixed with other things or without admixture.

Druggist B., who does not pay the retail liquor dealer's tax, also buys a barrel of alcoholic liquor, and by medicating it, is able to sell it without the payment of any tax at all. The tax is levied upon the *business of selling alcoholic liquors*, and in the two cases cited the one dealer sells as much as the other, the only difference being in the *manner* of sale.

The alleged inequality would be even less under the Harrison Bill, because the latter requires the physician who administers the drug to pay the same tax as the druggist, it only excuses him from the absurdity of demanding that his patient register as a dealer in narcotics before he receives the needed dose of medicine. In administering that dose the physician is not performing a commercial function in the ordinary sense, even though he makes a charge for his services and includes in that charge the cost of the medicine, just as the druggist who does not pay the liquor dealer's tax includes the price of the alcohol in the mixture which he compounds.

Another objection that has been made to exception "a" is the claim that to permit physicians to dispense these drugs to their patients without as close supervision as is exercised over their sale by the druggist will result in transferring the illegitimate traffic in habit-forming drugs from the dope-selling druggist to the dope dispensing physician.

To this objection it may be answered:

First. The exception in favor of physicians, dentists, and veterinarians is so worded as to make it exceedingly dangerous for them to dispense the drugs in other than a perfectly legitimate manner. They may dispense in the course ot their professional practice only, and only when in actual personal attendance upon their patients.

Second. The last paragraph of Section 2 makes it unlawful for any person to make use of the order blank to obtain any of the named drugs "for any purpose other than the use, sale, or distribution thereof by him in the conduct of a lawful business in said articles, or in the legitimate practice of his profession." How long, under this provision, could the dope dispensing physician continue the business until his order blanks filed with the dealer would lead to his detection, and subject him to the $2000 fine prescribed by the act, and how many physicians would be willing to assume such a hazard?

Third. If it were true that exception "a" would result in transferring the illegitimate traffic in narcotic drugs from the drug store to the offic of the dispensing physician, it would furnish the strongest kind of reason why the drug trade should give the bill its hearty support and thus at once rid pharmacy of its most undesirable members, and make clear to the world the responsibility

of a certain class of doctors for the evils resulting from the improper use of narcotic drugs.

Fourth. There is nothing in this section, or in any other part of the bill, that would impose any impediment or restriction upon state legislation regulating or even prohibiting the sale within the state of habit-forming drugs. If the Federal law will provide the means of tracing these drugs in quantities to those who distribute them to consumers, the state law may safely be trusted to impose proper restrictions upon their distribution.

Still another objection which has been strenuously urged to exception "b" in Section 2, is that the druggist will have no means of learning what physicians, etc., are registered under the act, and may innocently make himself liable to the heavy penalties of the law by dispensing on the prescription of a physician who has not registered.

The phrase, "registered under this act" was first inserted in one of the earlier forms of the bill (the third prior to the present one) and was carried over into its two successors apparently for no other reason than that no one seems to have objected to it until after the pending measure had been started on its way through Congress.

In the writer's opinion, the phrase might be omitted without harm to the measure, though he does not share the alarm of those who see in it a great menace to the interests of the pharmacist.

In this connection the writer calls attention to the fact that Section 6 expressly exempts from all of the requirements of the act any and all preparations which do not contain more than two grains of opium, one-fourth grain of morphine, one-twelfth grain of heroin, or one grain of codeine, in one fluid or avoirdupois ounce, and consequently that a large majority of legitimate preparations and prescribed mixtures will not be covered by the act at all. The physician may dispense or prescribe, and the pharmacist may compound and sell such preparations without registering as dealers or without considering the act in any particular.

It is only when the amounts exceed the above stated maximum quantities that the act would apply.

If the measure should become a law, it certainly will not be long thereafter until lists of the physicians registered in any section will be available to the druggists of that locality, probably obtained and published by the drug journals or by local pharmaceutical associations, and until this has been done the druggist can always insure his own safety without any great loss of revenue by simply refusing to dispense upon the prescriptions of physicians not known to be on the register.

Whether the Harrison Bill shall become a law or not, it is fairly certain that the day is not far distant when it will nowhere be safe to dispense habit-forming drugs in such quantity or in such form that they might be used to satisfy a drug habit unless the pharmacist is well enough acquainted with the prescriber to feel assured that they are not intended to be so used.

In conclusion, the writer does not contend that the bill is perfect, or that it fully represents his own views of what such a bill ought to be, but he does regard it as a fair and reasonable compromise between the conflicting interests and

claims of those who will be affected by it, and he believes that if it becomes a law it will not only furnish the evidence necessary to enable the several states to more effectually enforce their own legislation upon the subject, but will also exercise a strongly deterrent influence upon those who are willing to take chances with the local laws, but will hesitate to try conclusions with the power of the United States Government.

J. H. BEAL.

STRIKING AN AVERAGE.

The hour of high-pitch enthusiasm is an exhilarating experience, but it is not a safe time for a man to take his own measure. Many a man, who, in a frenzy of patriotism, would bare his bosom to a hail of shot, or singe his hair at the mouth of the enemies' cannon, would not be worth three cents to the army. His feet would give out the first five miles of a forced march, and he would take his death of cold sleeping on the ground.

Many a man fails in business because he plunges in when red-hot with enthusiasm and then sizzles down until he is so cool he gives his customers a chill every time they come in. In entering any race, it is not safe for a man to figure himself in at top speed for the entire run. In estimating his assets on going into business, a man must not count himself in at what he feels he is worth at the high point of enthusiasm. He should be honest with himself, and, from what he has already done and failed to do in other things, strike an average. To be sure, he should raise that average if he can. But, if his normal ingenuity and push and efficiency are sixty, it is not safe to go into business or run for an office that will require a hundred.—*Popular Magazine.*

Scientific Section

Papers Presented at the Sixty-First Annual Convention

SUGGESTIONS REGARDING THE WORK OF THE SCIENTIFIC SECTION.

F. E. STEWART, PH. G., M. D., PHILADELPHIA.

We hear much in the pharmaceutical journals about the "profession" of pharmacy, but where is it? To be sure we have our pharmaceutical colleges and press, pharmacopœias, dispensatories and text-books, and hosts of pharmaceutical students, but it stops right there. Where is that body of professional men engaged in the practice of pharmacy we read about in the journals? Alas it does not exist. The modern pharmacy is a department store with a pharmaceutical annex.

Are we ever to have a profession of pharmacy, that is a body of men working in cooperation with the medical profession as experts in drugs? Are the students who worked for their diplomas ever to have an opportunity of using the knowledge they acquired at college in a practical way? That depends upon the medical profession. At the present time physicians do not prescribe drugs as formerly, and pharmacy, or the art of preparing drugs to meet the demands of the medical profession, languishes. Is that because drugs are useless in the treatment of the sick, or are there other reasons accounting for it?

A graduate of one of our eastern university medical schools recently called on me for advice regarding the use of a bacterial vaccine. He was also a graduate in pharmacy. Moreover, he was a very successful practitioner with a large practice. Speaking from thirty year's experience he said, "I am thankful for my pharmaceutical education. It gave me an insight to drug therapy. Not that I learned how to practice medicine at the college of pharmacy, but I learned about drugs, and how to prepare and dispense them. At the medical school I learned about diseases and how to diagnose them, but I did not learn what drugs to use in their treatment or how to use them. When the medical student graduates he does not know how to write a prescription. That is where the medical schools are weak. Now my pharmaceutical education came into play. I soon found out why the old worthies in the profession used such preparations as Basham's Mixture and Deshler's salve—preparations now considered worthless by some of the would-be medical authorities, so I commenced to use them in the same way, as recommended by the fathers of medicine, and with good results. That is why I have a large practice while many good men who perhaps know more than I do about some things have failed. They did not know how to use the materia medica."

There are thousands of physicians who do not know how to use the materia medica. About all they know about drug therapeutics is what they learn by reading the advertising pages of the medical journals and by listening to the

detail man. I have nothing but praise for the manufacturers who tell the truth in advertising and I compliment the detail man who conveys accurate knowledge to the physician for he is doing good work. But where does the professional pharmacist as an expert in drugs come in? Why does not the pharmacist call on the doctor and give him information concerning the advances in materia medica science? Why leave it all to the detail man? The doctor wants to know about drugs and if the druggist knows enough about them to give the doctor the information he craves, the druggist will always find a hearty welcome when he calls on the doctor.

What the doctor particularly wants to know about drugs is how to use them. I discarded from my correspondence files not long ago five thousand letters representing about four years' correspondence with doctors who wanted to know about drugs, especially in relation to serums, bacterins and tuberculins. Why did the doctors write to me on the subject? Why did they not ask their local druggists about them? You know the answer without my telling you. The local druggist as a rule is not an expert in drugs.

In answering the thousands of questions asked by physicians about drugs, I hardly ever express an opinion of my own. It is my habit to quote authority for all therapeutic statements. I give the doctors full information regarding the untoward effects, limitations, and comparative value of the newer materia medica taken from the reports of competent observers. That is what the doctor wants.

You say you are not competent to give such information. You would have to become competent if you took a position on the detail force of a manufacturing house. Why not read up?

Read up on the subject of immunity and its artificial production for the prevention and cure of disease and learn the difference between serums and bacterial vaccines, and how both are used, then inform your doctors about them.

Read up on drug standarization, then put in a line of standardized products and go and tell your doctor about it. Read up on drug preservation, then place your biologicals in cold storage and tell your doctors why you are doing so. The president of the state board of health in one of the eastern states gave warning to the pharmacists of his state to the effect that unless druggists carried their biological stock in refrigerators, the board of health would make preparations to carry its own stock.

After delivering my lectures on bacterins, serum, and smallpox vaccine two years ago I told the students to stock up with these products when they went into practice and bought their own stores, then go and tell the doctors about them. About a year afterward I met one of the graduates who had recently purchased a store of his own. Said he, "Tell the class for me that the plan is a good one. I tried it and my total sales increased one-third in a month in consequence."

But don't stop with the doctors. Tell their patients what you are doing. I called on a druggist in Scotland to pay my compliments to one of the fraternity some time ago. He was doing the largest business in his city. "How did you get such a fine business," I asked. "I will tell you," he replied. "I have been in the drug business fourteen years, seven in America and seven here in this store. When I purchased the store I informed the doctors and the leading people in the neighborhood that, as a professional pharmacist and expert in

drugs, I would personally guarantee that the medicines dispensed in prescriptions and sold over my counter conform to recognized standards. I also informed them that I would charge accordingly, for standardized medicines cost more than other medicines; and if they wanted cheap drugs not to come to my store for them. I kept hammering away until I educated physicians and their patients to discriminate in favor of standardized products. Standardization is the secret of my success. The future of pharmacy depends upon drug standardization."

Read up on the different preparations of the pharmacopœia and tell the doctors and the people about them. Physicians would prescribe more ointments if you would show them the difference between carefully prepared ointments and those made by careless manipulation. Enlighten people about the difference between properly prepared U. S. P. ointment of rose water and the miscellaneous brands of commercial cold creams.

The time at my disposal will not permit me to tell all of the things you can tell the physicians and the people about the preparations of the Pharmacopœia. Be sure and tell them how the Pharmacopœia itself is prepared so they may realize that it is the product of the concentrated brain work of a committee of high class drug experts representing the entire medical and pharmaceutical professions of the United States.

Then come here to this section and relate your experience. Give us papers with the information written in simple language so the busy physician can readily comprehend it. Get the editor to furnish you some reprints of your paper and send them to the physicians in your neighborhood. If you continue to do that kind of work, giving the doctors the kind of information they want, you will be surprised to see how your business will grow.

Now if a number of you will undertake this kind of work the JOURNAL of the A. Ph. A. will contain many pages of fresh information concerning the materia medica, new and old, and it will not be long before the doctors will commence to subscribe for the JOURNAL. I can conceive of nothing that will do more to popularize the materia medica and decrease therapeutic nihilism than this.

I would therefore move that the chairman appoint a committee of three to formulate a set of queries along the lines of the above suggestions, the list to be published in the JOURNAL sufficiently in advance of the next annual meeting to permit you to study the list to do some original work, and to contribute to the section such information concerning the materia medica of a character suitable for the physician to use as a guide in prescribing. If you will do this I am sure that you will forgive me for reading such a long paper.

AN IMPROVED FORM OF KYMOGRAPH.

PAUL S. PITTENGER, PHAR. D.

The ever increasing number of routine samples sent to the laboratory for physiologic tests, together with the desire to economize space, has induced me to increase the efficiency of the various apparatus employed sufficiently to enable us to handle comparatively large amounts of routine work without interfering markedly with our experimental or research work.

Among the various methods employed for physiologic standardization, blood pressure tests consume comparatively the greatest amount of time. This is especially the case with the blood pressure method for ergot, as it is necessary to check the results on two or three dogs, and, due to accumulative action, it is also necessary to allow from one to one and one-half hours to elapse between injections. With the usual method of using one manometer and kymograph it is possible to work with only one animal at a time, and it therefore requires the greater part of two days to assay one sample of ergot in duplicate. The frequency with which we receive at one time four or five samples of ergot led to my devising the following apparatus with which it is possible for one man to run blood pressure tests on four animals at the same time, and record all the tracings on one kymograph without their interfering with each other. This enables one operator to assay at one time with one kymograph two samples of ergot in duplicate, or, he can assay at the same time one sample of ergot in duplicate and one sample of adrenal extract.

The following cut shows the arrangement of the apparatus:

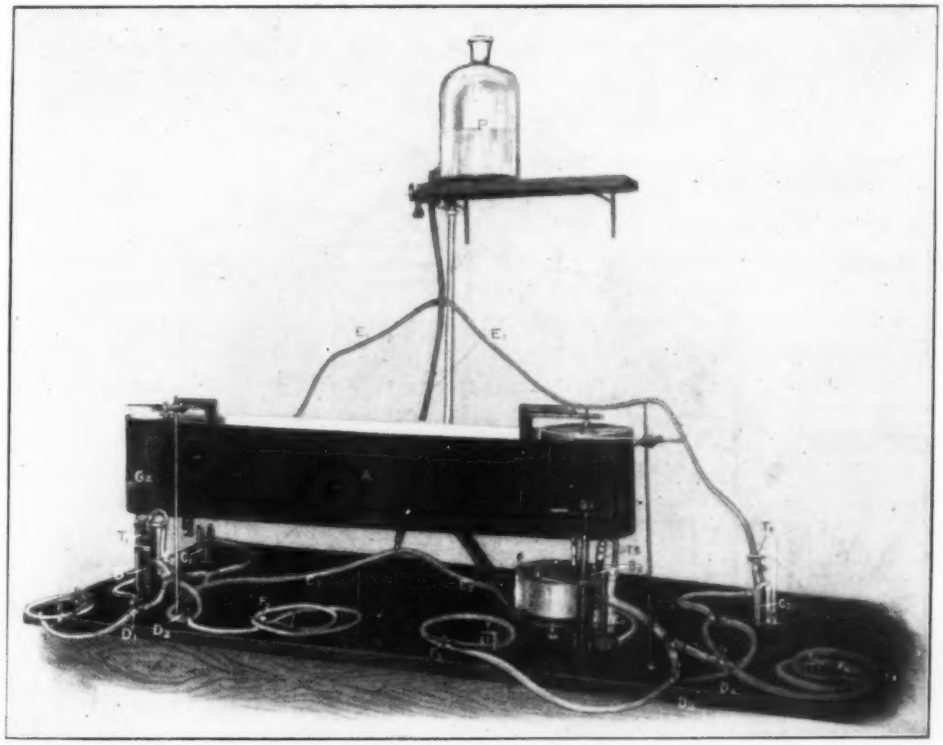


FIGURE 1.—Kymograph arranged for making blood pressure tests on four animals at one time. A.—Long paper Kymograph; B1 and 2, Manometers, with writing points; G1 and 2, writing points; C1 and 2, Dummy manometers, without writing points; D1, 2, 3, and 4, Three-way stopcocks; E1.—Tubes used for securing pressure in manometers C1 and 2, from pressure bottle; E2.—Tubes used for securing pressure in dummy manometers B1 and 2 from pressure bottle; F1, 2, 3, and 4,—Canulas; H1, 2, 3, and 4,—Connecting tubes; T1, 2, 3, and 4,—Stopcocks.

Description of Method.—First completely anesthetize the animal. Any of the volatile anesthetics, such as ether or chloroform, may be employed, but, since it

is of great importance that the blood-pressure should not fluctuate from the action of the anesthetic, it is better to employ one of the following methods for this purpose:

1. Inject subcutaneously 0.01 gm. of morphine sulphate for each kilo of body weight, and supplement by the use of such a quantity of ether as may be necessary to prevent the pain of the operation. After connecting the artery with the manometer the animal is allowed to come from under the influence of the ether. No experiments should be begun until at least ten minutes have intervened after the withdrawal of the ether.

2. Inject subcutaneously 0.01 gm. of morphine sulphate per kilo body weight of animal, and 45 to 60 minutes later give by mouth 1.5 to 2 gm. of acetone chloroform (1.5 gm. for animals weighing 6 to 7 kilos, 2 gm. for those weighing 10 to 12 kilos, and intermediate weights accordingly). The acetone chloroform is prepared for administration by shaking it with 4 cc. of alcohol until dissolved and then adding 4 cc. of water and again shaking.

The latter method is especially valuable for this work, as it is easily carried out, and under its influence the blood-pressure and heart action remain practically constant for hours. I find, however, in many cases, that the animal does not react in such a way as to give concordant results immediately after the administration of this anesthetic, and therefore advise that an interval of two hours be allowed to elapse after the administration of the acetone-chloroform so that the effects of the anesthetic may partially pass off.

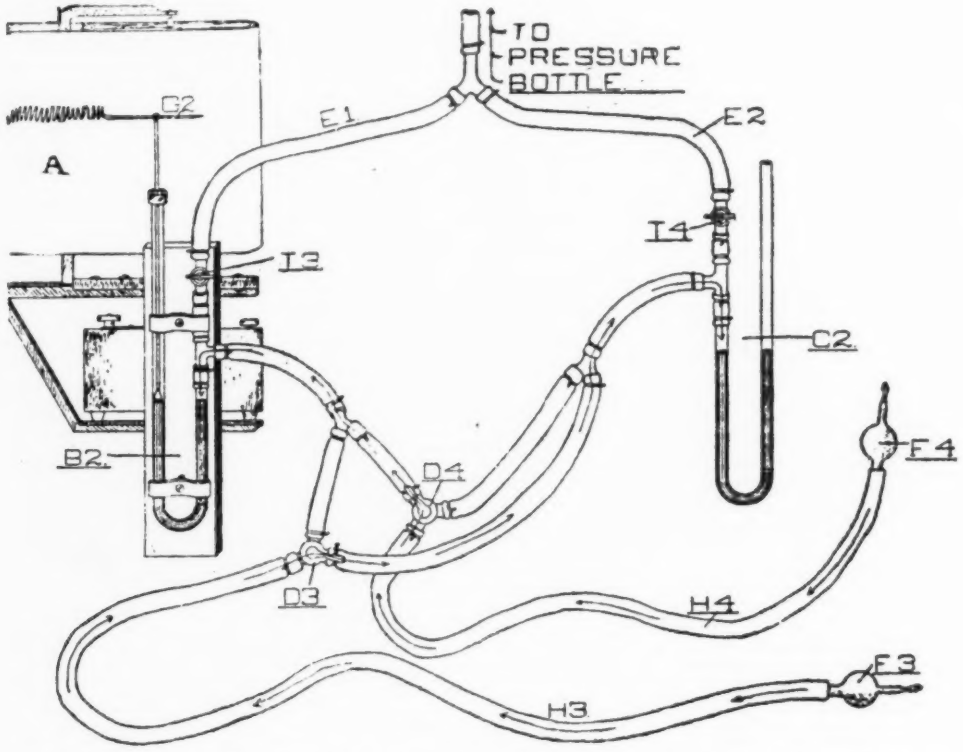


FIGURE 2.—A graphic illustration of the arrangement of one-half of the apparatus. The letters and figures used in this illustration correspond to those used in Figure 1.

Each of the four canulas (Fl, 2, 3, and 4) is then tied into the carotid artery of a dog. Pressure is obtained within the various tubes from the pressure bottle (P) by opening the cocks, (Tl, 2, 3, and 4) (T2 invisible). It will be noted from Figure 1 that each connecting tube (Hl, 2, 3, and 4) terminates in a three-way stopcock which enables the operator to connect it with either a manometer which writes on the smoked drum, or with a "dummy" manometer.

To assay two samples of ergot it is merely necessary to use two dogs on one end of the kymograph for one sample and two on the other end for the other sample. The three-way stopcocks are arranged in such a manner that one dog on each end records its pulsations upon the revolving drum, while the other pulsates against a "dummy" manometer. Inject the proper dose of fluid extract of ergot into the dog which is recording its blood pressure on the right-hand side of the kymograph; allow the drum to revolve five, ten and fifteen minutes after the injection. Then by merely reversing the stopcocks (D3 and 4) the dogs can be interchanged, or in other words, the dog which was recording its blood pressure on the smoked drum will pulsate against the mercury in the "dummy" manometer, and the one which was previously pulsating against the "dummy" will record its normal blood pressure upon the smoked drum. After taking a normal tracing of several inches in length, stop the drum; then check the former results by injecting this dog with the same preparation given to dog No. 1; again, take tracing five, ten and fifteen minutes after the injection. Repeat operation by injecting, in a similar manner, the other sample into the dogs on the left-hand side of the drum. This will consume about one hour and fifteen minutes. It is then necessary to wait only about fifteen minutes or until the one and a half hours have elapsed since the first injection was given when the entire procedure can be repeated. This is continued until each dog has received three or four injections. The charts are then measured and the average rise of pressure produced by each preparation is taken as its figure of potency.

To assay one sample of ergot in duplicate and one sample of adrenal extract it is necessary to employ only three animals, two on the one end for the ergot and one on the other end for the adrenal extract.

PHYSIOLOGY LABORATORY OF H. K. MULFORD COMPANY, July, 28, 1913.

BETHABARA.

OTTO RAUBENHEIMER, PH. G., BROOKLYN, N. Y.

A few years ago at a meeting of a State Pharmaceutical Association, a highly scientific paper was followed by a rather ordinary one on "Fishing Tackle." What a contrast! From the sublime to the ridiculous! Perhaps I will be also criticized by reading before the Scientific Section of our great A. Ph. A., a paper on "Bethabara," which is the name of the wood used in the manufacture of fishing rods.

The vegetable kingdom abounds in dye stuffs which have been made use of from the oldest times. The ancients well knew how to prepare, how to extract,

and how to treat the raw material in order to bring out the most beautiful colors. Dyeing belongs to the many arts which the Egyptians, Lydians, Phœnicians, and the Jews have greatly developed. They knew how to fix certain dyes, especially on cloth, by means of mordants. Color reactions, indicators and test papers have also been observed and utilized in ancient times. As an illustration of this kind I might mention that paper saturated with extract of nutgall was then used to detect the admixture of the cheap iron vitriol with the more expensive blue vitriol. Dominique Duclos (1623-1684), the physician-chemist of Paris, introduced reagents of nutgall, iron-vitriol, litmus, decoction of lillies and of Brazil-wood. Michel Eugène Chevreul (1786-1889), the Nestor of the French chemists, as director of the world renowned Gobelins tapestry works in Paris, greatly improved the chemistry of dyeing, as well as that of dye stuffs. In 1811 he prepared hæmatoxylin from logwood and brazilin from Brazil or red-wood. Both of these chemicals have since then come into use as indicators, especially in the volumetric analysis of alkaloidal solutions.

A few weeks ago Dr. Binford Throne, a native of Nashville, and now a well-known dermatologist of Brooklyn, made himself a fishing rod from Bethabara wood. This wood is highly valued on account of being exceedingly tough, hard and close grained. Dr. Throne discovered that after working with this wood and washing his hands with soap and water a beautiful red color was developed, evidently from the alkali in the soap. He brought me some of the shavings and asked me to further investigate the coloring matter, which is the excuse for my present paper.

In order to be absolutely sure of the proper botanical origin of this wood, the author sent samples to Dr. C. D. Mell, in charge of Wood Structure Investigations, Forest Service, United States Department of Agriculture, Washington, who was kind enough to examine some and pronounce it a true sample of Bethabara, which compares exactly with the sample in the Forest Service wood collection. Dr. Mell was also good enough to give me the following information:

"Bethabara is a name which was copyrighted by William Shipley, of Philadelphia, and applied to a wood which he imported into this country from British Guiana, South America. The tree producing this wood is commonly known in British Guiana and also in the English market as wicaba, washiba, or bow-wood, and its generic name is *Tecoma*. I have been unable to determine which one of the many species of *Tecoma* yields the wood known as 'bethabara,' but it is probable that it is produced by several species of this group. Even the wood of an unrelated tree known as tonquin or tonga (*Dipterix odorata*), also of British Guiana, has been sold in the American markets as 'bethabara' for making fishing rods. The beans of the latter have a medicinal value, but so far as is now known the wood of these two trees does not yield commercial dye. The pores or vessels of these woods are filled with yellowish-green tyloses, which may perhaps by proper treatment yield a dye.

"The true bethabara (*Tecoma* sp.) grows to a large size, but is a rare tree and little known. The wood is of an olive-green color, is exceedingly tough, hard, and close grained, and is the best known wood for bows. The average height of the tree is about 120 feet and it can be had to square thirty inches free of sap."

Dr. Mell was also good enough to supply me with authentic samples of *Tecoma* and of *Dipterix odorata,* which are herewith submitted as specimens.

Extracts of Bethabara.—Thinking that Bethabara might be similar to Brazil-wood, I first employed the U. S. P. Process for making Brazil-wood Test Solution, but I soon discovered that water does *not* extract the desired indicator. The shavings of Bethabara wood were extracted with the following different solvents, making a uniform 5 percent solution:

1. Cold maceration with water.
2. Infusion.
3. Decoction.
4. 25% Alcohol.
5. 50% Alcohol.
6. 95% Alcohol.

The cold aqueous extract has a yellowish color, while that prepared by heat has a purplish or reddish-brown color, according to the heat employed.

The alcoholic tinctures increase in color to a reddish-brown with the increase of alcohol.

Experiments With the Extracts as Indictors. Numerous experiments were made and it was soon discovered that the aqueous extracts had very little or no value as an indicator. The tincture prepared with 25 or 50 percent alcohol were somewhat better, but by no means ideal. However, the tincture prepared with 95 percent alcohol proved an indicator *par excellence.* It is the equal of phenolphthalein test solution and is much sharper than litmus-paper.

The Indicator-Tecomin (?). Several attempts have been made by the author to isolate this indicator. These experiments, owing to the limited supply of the wood, had to be somewhat restricted.

An alcoholic tincture was precipitated with water and then set aside. A yellowish substance precipitated, the supernatant liquid retaining its reddish-brown color. By repeated washings with water and subsequent drying, a yellow powder was obtained as shown by the sample. This powder is insoluble in water, but is freely soluble in alcohol.

Another method pursued consisted in first extracting the Bethabara shavings with boiling water repeatedly, until the infusion is almost without color. Then the wood is macerated with water containing one percent of ammonia water, which forms a blood-red solution, which is concentrated by evaporation, by which process the excess of ammonia is also driven off. The solution is then carefully neutralized with diluted sulphuric acid, which combines with the ammonia and liberates the yellow substance. This floats on top and can be obtained by filtration, washing and drying.

According to our present system of nomenclature the name "Tecomin" might be suitable for this indicator, being derived from species of the *Tecoma* wood. The author is in hopes that further experiments by himself and others will throw more light on this subject.

Conclusions. Bethabara contains a sensitive indicator which turns pink with alkalies and yellowish with acids. This indicator is especially sensitive to ammonia.

Pure alcohol is its best solvent.

This principle which is a yellow powder, can be obtained by precipitating the alcoholic tincture with water, washing the precipitate with water and then drying.

ESTIMATION OF OIL OF PEPPERMINT IN SPIRIT OF PEPPERMINT.

CHARLES H. LAWALL, PH. M., AND LEROY FORMAN.

The estimation of oil of peppermint in Spirit of Peppermint has usually been carried out by means of the precipitation method as used for Spirit of Lemon, using a Babcock milk flask with a graduated neck. The varying results, however, which have been obtained have caused criticism of the method as inaccurate, and upon investigation of the subject we have found that the fault lies not with the principle of the method but with the manner in which it is carried out. The use of a Babcock milk flask, holding as it does only a little more than 25 cc. of liquid, does not permit of sufficient dilution with water in preparations containing a high amount of alcohol and a low amount of oil, for peppermint oil is distinctly more soluble in diluted alcohol menstrua than is lemon oil, to which the method is particularly applicable in its form adopted in the U. S. Dept. of Agriculture Bulletin No. 107.

Experiments have shown us that where the alcoholic strength is reduced below 25 percent, the amount of oil dissolved is negligible in amount, but the use of so small a proportion of the Spirit in a Babcock milk bottle makes the separated volume of oil so small in amount as to seriously interfere with the sensitiveness of the method to within one or two percent.

A larger form of flask was designed by us which gives very good results and which consists of a conical flask of 100 cc. capacity terminating in a long narrow tubular neck not over 12.5 mm. in diameter and graduated up to 10 cc. in one-tenths.

The introduction into such a flask of 25 cc. of Spirit of Peppermint, followed by the addition of 5 cc. of hydrochloric acid and sufficient warm water to fill the flask and bring the oil up into the neck, suffices for the determination within one-tenth of one percent upon all stregths from 10 percent down to 1 percent, all in strong alcohol. The addition of salt which was thought would be of value in hastening the separation of the oil is not permissible, for in the salting out by such a process some of the alcohol is separated with the oil and the results run high to the extent of several percent in the several experiments tried.

With such a flask, gravitation alone suffices to bring the oil up into the neck of the flask within several hours, occasionally rotating to lessen the tendency of the globules to adhere along the sides of the flask and neck. If the flask were constructed, as could easily be done, so as to permit of whirling in a centrifuge, the estimation could be made accurately and satisfactorily within a very few minutes.

Such flasks are in use by us for the determination of all of the spirits of oils lighter than water, excepting almond, and the additional advantage is gained that after the volume of the separated oil has been accurately observed and noted, the oil itself may be easily and completely removed by means of dry filter paper or blotting paper inserted in rolled strips, without the removal of any of the hydro-alcoholic liquid beneath. The contents of the flask after the

removal of the oil may be transferred to a distilling flask, the hydrochloric acid neutralized and the alcoholic distillate from 25 cc. of the original spirit obtained in better condition, as regards freedom from oil, than usually results by following the official method of diluting the original spirit and filtering through magnesium carbonate, which always occasions a slight loss by evaporation which cannot take place to the same extent under the procedure given above.

PHOSPHORIC ANHYDRIDE CONTENT OF SIMPLE AND COMPOUND SYRUP OF HYPOPHOSPHITES.

H. E. BARNARD AND W. D. MCABEE.

The attention of this department was recently directed to the great difficulty of holding all the ingredients of Syrup of Hypophosphites, both simple and compound, in solution. The solution of the various salts in water is easily accomplished but the addition of the sugar precipitates a part and if the product is immediately strained, this precipitate is removed and the resulting solution is lower in strength than was originally intended. Upon inquiry, we found that several manufacturers had noted this fact and were somewhat in doubt as to the actual content of finished product, but had assumed the loss to be immaterial.

The first difficulty encountered in our investigation was the adoption or formation of a suitable method for the determination of the amount of phosphorus present. It was at once apparent that the great amount of organic matter must be destroyed by some means that would not interfere later in the phosphate precipitation and for this reason the simple process of ashing was not applicable because all hypophosphites decompose at low heat into pyrophosphates with the evolution of hydrogen phosphide. The reaction is quite variable and the remaining phosphorus cannot be used as an index of the amount originally present.

A search of the literature revealed the fact that while no method was recommended, the National Dispensatory states that the one of H. A. D. Jewett is "seemingly" accurate for the estimation of phosphorus in calcium hypophosphite. Briefly this method consists in the liberation and oxidation of the hypophosphorus acid to phosphoric acid by means of bromine and the determination of the phosphoric anhydride in this condition. Any phosphites that might be present as impurities are removed by precipitation with lead acetate. We experimented with this method as outlined and obtained very satisfactory results on calcium, sodium and potassium hypophosphites alone and in the presence of a large amount of sugar. In the course of our experiments we found that the lead acetate gave but a slight precipitate even in a concentrated solution of a hypophosphite and the percent of phosphites in the dilute syrup could be neglected. We also, for convenience, substituted concentrated nitric acid for the bromine and evolved the following method in detail:

Determine the specific gravity with a Westphal balance or pycnometer. Weigh accurately two grams of the sample into a one hundred cubic centimeter beaker, add ten cubic centimeters concentrated nitric acid and cautiously bring to boiling.

A violent reaction occurs at this point and care must be taken to prevent loss through bumping and boiling. When this violent reaction has ceased, add gradually forty cubic centimeters concentrated nitric acid and boil for five minutes. Nearly neutralize with ammonia, or, if not sufficient nitric acid remains to form the ammonium nitrate necessary for the molybdate precipitation, make alkaline with ammonia and again make acid with nitric acid. Ammonium molybdate is then added, the precipitate dissolved in ammonia and the phosphorus precipitated with magnesium in the usual way.

Having found a satisfactory method, the next step was to procure samples and we were somewhat surprised to learn that the two pharmacopœial preparations comprised but a small part of the hypophosphite syrups on the market. The majority found by our inspectors were made from special formulas and as the analysis of such samples would not aid materially in the determination of the point in question, we were compelled to investigate fewer samples than we should have wished to do. While only six of the samples examined were labelled so that they were presumed to be U. S. P. strength, two others, made from formulas that called for approximately the U. S. P. quantity, are comparable because of their nearly equivalent concentration. One sample examined claimed to be only ten percent of the pharmacopœial strength and three others contained no label statement and were so qualified as to prevent their being classed U. S. P. strength. The following table gives in detail the results of the analysis together with the label statement.

No.	Label.	% U. S. P. Strength. Label.	Found
1	Syrup Hypophosphites	100.	12.74
2	Comp. Syrup Hypophosphites	100.	15.72
3	Syrup Hypophosphites Comp. with Quinine	100.	28.89
4	Syrup Hypophosphites Comp., Churchill's Formula	111.	107.44
5	Comp. Syrup Hypophosphites	100.	43.04
6	Comp. Syrup Hypophosphites	100.	9.87
7	Syrup Hypophosphites	100.	96.59
8	Syrup Seven Hypophosphites	101.	91.59
9	Comp. Syrup Hypophosphites	10.	11.68
10	Syrup Hypophosphites, Lime and Soda	....	42.38
11	Syrup Hypophosphites, Hematic	....	23.49
12	Nutritive Hypophosphites	....	17.00

In this table the percent U. S. P. strength as indicated by the label was assumed to be one hundred when the formula was not given and the label was not qualified. When the formula was stated the U. S. P. strength was calculated from it directly, and where no formula was given and the label was qualified in some manner, this column has been left blank.

As may be readily seen from a glance at this table, only one sample, number four, contains the amount of phosphoric anhydride required by the Pharmacopœia. This sample was made from Churchill's formula which differs from that of the Pharmacopœia by increasing the quantity of the more soluble sodium salt and decreasing the less soluble calcium hypophosphite. While the excessive strength of this sample may be explained in this manner, the fact remains that if a correction is made for the two percent impurities in the ingredients, as allowed by the Pharmacopœia, sample number seven is very nearly legal and was made strictly according to the U. S. P. formula. The other samples clearly

demonstrate that the hypophosphite preparations now on the market are woefully below standard and more care must be used in their manufacture than has been done heretofore.

INFLUENCE OF SIZE AND SHAPE OF BOTTLES UPON THE ASSAY OF PEPSIN.

HOWARD T. GRABER, DETROIT, MICH.

In a previous paper, entitled, "Some Observations upon the Assay of Digestive Ferments," appearing in the *Journal of Engineering and Industrial Chemistry,* (Vol. 3—No. 12—December, 1911), I gave a resume of tests applied by me and also called attention to some of the peculiarities of these delicate enzymes shown in their standardization.

Under the subject of Pepsin, I was the first to call the attention of chemists to the influence of the age of the egg upon the apparent digestive strength of a pepsin when using coagulated egg albumen as the proteid to be digested. I showed that eggs from 5 to 10 days of age gave a maximum digestive strength to a sample of pepsin. I also called attention to the important part played by the strength of acid used for digestion and showed that the pepsin dissolved in an acid solution of more or less than 0.3%, by weight, absolute hydrochloric, would not digest as much proteid as when dissolved in a menstruum of exactly this official strength (0.3%).

Another factor, overlooked by chemists in the past and very important from the standpoint of accuracy and uniformity of results in standardization by various chemists, is the size and shape of the bottle used in the digestion experiments. The United States Pharmacopœia states, in reference to the digestion bottle used with pepsin standardization, to digest in a wide-mouth bottle of 100 cc. capacity; but the question arises, do you get the same relative amount of digestion in a short round bottle of 100 cc. capacity that you do in a taller square bottle of the same volume? From the results of my experiments, my answer is "No"; different bottles give different results. This is illustrated by the following experiments:

Pepsin Sample No.	Style of Bottle.	Strength Tested for	Residue
	(No. 1)		
Standard 1:3000	6 oz. French square wide mouth, capacity 175 cubic centimeters. 5¼″ Tall.	1:3000	1 cc.
	(No. 2)		
1:3000	4 oz. French square wide mouth, capacity 120 cc. 4¾″ Tall.	1:3000	1 cc.
	(No. 3)		
1:3000	3 oz. French square wide mouth, capacity 90 cc. 4½″ Tall.	1:3000	1 cc.
	(No. 4)		
1:3000	3 oz. Round, Prescription wide mouth, 100 cc. capacity. 4″ Tall.	1:3000	1¼ cc.
1:3000	4″ Tall.	1:2750	1 cc.

In the above experiments the eggs were but five days old and were too fresh,

as shown by the residue remaining, 1 cubic centimeter. The experiment was repeated with eggs eight days old, with the following results:

Pepsin. Standard	Style of Bottle.	Strength Tested.	Residue
1:3000	No. 1	1:3000	0.5 cc.
1:3000	No. 2	1:3000	0.45 cc.
1:3000	No. 3	1:3000	0.5 cc.
1:3000	No. 4	1:3000	0.8 cc.
		1:2750	0.5 cc.

This was shown again in another test on eggs eight days old, as follows:

Pepsin. Standard	Style of Bottle.	Strength Tested.	Residue
1:3000	No. 1	1:3000	0.5 cc.
1:3000	No. 2	1:3000	0.5 cc.
1:3000	No. 3	1:3000	0.5 cc.
1:3000	No. 4	1:3000	0.8 cc.
		1:2750	0.5 cc.

Conclusions.—The experiments cited show that the style of bottle exerts a big influence upon the amount of proteid digested. Bottles No. 1, 2 and 3 are of the same style, i. e., wide mouth, French square of 6 oz., 4 oz. and 3 oz. capacity, and the results show that the digestion in these bottles seems to be the same in spite of the difference in relative capacity. With bottle No. 4, however, a strength of 250 units less is shown, and this bottle is a short, round, wide-mouth prescription bottle of 3 oz. capacity. My explanation is that in this style of bottle the contents do not receive the same agitation, due to the bottle being shorter in length and larger in diameter, even though its relative internal capacity is more than bottle No. 3; thus proving that the digestion conducted in a square long bottle leaves less residue than a short round bottle of larger internal volume.

Another point that I wish to bring up is that in the use of the 6 oz. French square, it is possible to add first the 10 grams of egg albumen, then all the acid, and finally the requisite amount of pepsin solution, and after securely inserting the stopper, to pound it upon a pad and completely disintegrate the albumen. With all the other sizes of bottles the directions of the Pharmacopœia to disintegrate the albumen first with a small quantity of the acid and a rubber-tipped glass rod and gradually wash rod with balance of acid, must be followed. As this might lead to an error, I recommend the use of the larger bottle and do not favor the introduction of any foreign substance at all, and the results show that the relative digestion is not changed by the size of this style of bottle.

In concluding, I wish to state that a personal equation as to agitation could not enter in my experiments, since the bottles were all tightly clamped into a revolving drum, which was immersed in a water bath, and when the drum was rotated, each and every bottle received the same amount of agitation and at the same time.

THE EXAMINATION OF MEDICINAL PREPARATIONS.

E. A. RUDDIMAN, PH. D., M. D., NASHVILLE, TENN.

The examination of medicinal preparations involves a rather wide range of knowledge. We should have a good working knowledge of inorganic and organic chemistry: of qualitative and quantitative analysis: of therapeutics, in order to know what to look for: of pharmacy, so that we can tell something about what simple preparations are likely to go into the complex mixture.

The agents used in medicine are almost numberless. I presume practically all plants have been used some time to relieve human ailments. New synthetic agents are being produced daily. There is no hope of ever knowing all about the analysis of these.

One of the first things to do in commencing such an examination is to find out for what the preparation is to be used. This may give us some idea as to the agents liable to be found, but when the preparation is claimed to be good for the whole category of diseases, probably it hasn't very much of any thing in it.

A trained nose and an expert taste are very convenient things to have and the evidence derived from these is some times more reliable than that obtained by chemical tests and often the only evidence obtainable.

Organic matter of some kind is generally present in the preparations to be examined and must be destroyed before making the analysis of the inorganic constituents. One of several well known methods may be used. But before destroying the organic matter, I generally apply Reinsch's test which is made by acidifying the mixture with hydrochloric acid, putting in a bright copper gauze and heating to boiling. If the test is negative, I generally presume that the metals depositing on copper are absent unless for some reason I think that they may be present in minute traces. The common metals which are deposited on copper are generally those which are most readily volatilized by destroying organic matter by dry heat.

While the estimation of inorganic constituents is complicated by the presence of organic matter, it is in the detection and estimation of organic compounds, like alkaloids, glucosides, neutral principles, and synthetic chemicals where we find the greatest difficulty. It is needless to say that there are many vegetable drugs that can not be identified because there are no definite principles in them or no characteristic tests for them.

In separating organic principles for identification the "shaking out" method is the one generally used, that is, shaking the preparation with an immiscible solvent. This method is very satisfactory sometimes and at other times is just the opposite. The trouble of course arises in making an emulsion between the preparation and the solvent. The presence of sugar and glycerin retard the separation of the solvent. If such drugs as senega, quillaja, sarsaparilla—drugs containing saponin-like principles—are present, it is almost impossible to avoid making an emulsion. Sometimes this tendency may be lessened by choos-

ing some other solvent. The emulsion may separate if allowed to stand for a time or breaks more easily by other means after the standing. Subjecting the emulsion to centrifugal action may break it up. The addition of a little solvent other than that originally used, such as alcohol or petroleum ether is often quite effective. The tendency to emulsify seems to decrease with the increase of the proportion of the solvent over the preparation. If the volume of the solvent be two or three times that of the preparation, there is but little danger. The addition of water to a syrup seems to cause emulsification more readily. Sometimes all these means fail and it becomes necessary to evaporate the solvent and start over. Often in cases where most of the emulsion is broken up, a little will yield only to evaporation.

In case of syrups and similar preparations, I have tried to avoid the trouble by drying up the preparation with filter paper, sand, kieselguhr, and extracting with strong alcohol, but this is slow and tedious and not very satisfactory.

Tablets frequently contain starch. The best way to extract them is to powder them, putting from 0.5 to 1.0 gram of the powder into a separatory funnel with 1 to 2 cc. of water and a few drops of ammonia water and then 15 to 30 cc. of the solvent. This can be shaken vigorously without emulsifying. Chloroform is the best solvent if it will dissolve the matter, because it is heavier than the water and powder and can be drawn off without disturbing the water or powder. The addition of much more water than that given above will be likely to cause an emulsion.

In choosing the immiscible solvent to be used in the shaking out process, we must be guided to some extent by what we expect to find. I do not think it is necessary or even advisable to use all the common solvents successively for in so doing some of the principles are apt to be lost. Of all of the solvents I prefer benzol because it is a poor solvent for alkaloidal salts and a fairly universal one for the free alkaloids, although not the best one for special cases. It will take out enough of any of the common alkaloids, except morphine, to get a test with the general alkaloidal reagents.

The method which I generally use for qualitative work is to evaporate off the alcohol, if much is present in the preparation, and make it acid with dilute sulphuric acid. Sulphuric acid is better than hydrochloric because the sulphates of the alkaloids are less soluble in immiscible solvents than the hydrochlorides, particularly in chloroform. For example, quinine hydrochloride is soluble in 0.8 parts chloroform. This acid mixture is extracted repeatedly with benzol, and in a few cases preceded or followed by ether or chloroform. The aqueous acid mixture is then made alkaline with ammonia and extracted repeatedly with benzol and later with chloroform, the chloroform being for the purpose of dissolving morphine. After having determined the principles present, the solvents best suited for their isolation and determination can be used.

The residue from the benzol washings of the aqueous acid mixture may contain caffeine, theobromine, narcotine, many glucosides, neutral principles, resins, oils, organic acids, synthetic compounds, etc. The glucosides and neutral principles are hard to separate, identify and estimate, and comparatively few have characteristic color reactions. The residues from the benzol washings of the aqueous alkaline mixture contain alkaloids and base principles. Fortunately

many alkaloids can be tested for in the presence of others but there are a few cases of interference. Brucine with strychnine, in the proportion in which they exist in nux vomica, lessens the delicacy of the strychnine test and if only a small amount of the mixed alkaloids be present, may entirely prevent it. If there is twice as much brucine as strychnine the test for strychnine will be negative. These can be sufficiently separated by converting the mixed salts in the free alkaloids and shaking with ether, strychnine being practically insoluble in ether, while brucine is quite soluble. A large amount of quinine with a small amount of strychnine, such as occurs in elixir of iron, quinine and strychnine prevents the getting of the strychnine test. Here again ether separates them. Quinine in large amounts prevents the tests for morphine. Antipyrin may prevent the quinine tests. Physostigmine and pilocarpine impair Vitalli's test for atropine but the mixture of these free alkaloids can be separated by carbon disulphide which dissolves atropine but not the other two. There are other combinations that cause trouble.

To separate alkaloids for quantitative determinations is generally tedious and often well nigh impossible. The presence of one alkaloid in solution frequently influences the solubility of others. Different combinations must be treated differently. Sometimes they can be separated by precipitants. Having a mixture of salts of cocaine and atropine, I converted them into sulphates and added a solution of platinum chloride to the solution of the sulphates. Platinum chloride does not precipitate atropine or the mydriatic alkaloids of the solanaceæ, but does most other alkaloids.

These examples are a few illustrations of the difficulties which beset the analyst when he comes to medicinal preparations, and these difficulties can be realized to some extent when we consider the great variety of forms of preparations, the many classes of agents used and the almost numberless individual constituents that may be found. Every preparation is a new problem, and in this lies the fascination.

THE MAN WHO DESERVES THE CHEER.

Never admire a man just because he has money. Any chump can get that, if he is mean enough to scrape it up and go without comfortable things to acquire it. But the man who thinks, strives, works, and sweats to grind out something that is of benefit to the whole race—that's the chap for whom to cheer! When I think of the telephone, the phonograph, and the electric light, I realize that all men are not born equal! Some get a bigger share of energy. —*Robert Lloyd.*

Section on Pharmacopoeias and Formularies

Papers Presented at the Sixty-First Annual Convention

REPORT OF THE COMMITTEE ON THE UNITED STATES PHARMACOPŒIA.

As is well known the present state of revision of the United States Pharmacopœia makes it unprofitable for the members of this committee to devote much time and attention to the old book which will be so soon replaced by the ninth revision. The majority of the members of this committee are on other important committees whose work will be completed with the publication of the Pharmacopœia and the National Formulary. After these works have come into use this committee as a whole will be in a position to begin collecting the data for which it was organized.

Early in the year the chairman suggested that he desired the members of this committee to report either to him or to the Association direct through the Section on Pharmacopœias and Formularies, such observations and suggestions concerning the U. S. P., as might be of value to the Committee of Revision. In response to this there are several papers, and some suggestions which follow in this report.

SOLUTION OF IRON AND AMMONIUM ACETATE.

This preparation when made according to the following formula is permanent, keeping for more than a year without change. The essential change is the increase of glycerin from 120 to 200 cc.

Tincture of Ferric Chloride	40 cc.
Diluted Acetic Acid	40 cc.
Solution of Ammonium Acetate	400 cc.
Aromatic Elixir	200 cc.
Glycerin	200 cc.
Water, a sufficient quantity to make	1000 cc.

—DUNNING.

SYRUP OF HYPOPHOSPHITES.

The sugar should be sufficient to saturate the solution, or 810 gm. This produces a syrup which is entirely permanent and, contrary to the opinion of others, in my experience the use of enough sugar for saturation does not salt out the hypophosphite salts.—DUNNING.

CALCIUM HYPOPHOSPHITE—SODIUM HYPOPHOSPHITE.

Copper sulphate T. S. is directed to be added and upon gentle heating a precipitate is supposed to form. This does not happen, except on long boiling, unless previously acidified.—DUNNING.

BORIC ACID.

The accuracy of the statement that the addition of hydrochloric acid decreases its solubility in water is questioned.—DUNNING.

SOLUTION OF SODIUM PHOSPHATE, COMPOUND.

It is suggested that 200 gm. of citric acid be used and that the solution of sodium phosphate be produced by heating. This greatly facilitiates solution and in no way injures the preparation.—DUNNING.

POTASSIUM AND SODIUM TARTRATE.

A flame test for the identification would seem to be desirable.—DUNNING.

MILK SUGAR.

The following is proposed as a test for cane sugar: A test solution is prepared by dissolving 1 gm. of resorcinol in 5 cc. of hydrochloric acid in 100 cc. of 80 percent alcohol. A few drops of this test solution added to a few grains of milk sugar in a porcelain dish and cautiously evaporated, the fluid being run away from the milk sugar on the side of the dish. In the presence of cane sugar a bright vermillion flash of red appears, while milk sugar gives a dull red, appearing very slowly after long heating. With a little practice, this test can be used for estimating mere traces of sugar in milk sugar. This test which is a modification of the test used for detecting hydrochloric acid in animal secretions, has given good results in my hands wherein the sulphuric acid has proved useless.—DUNNING.

SYRUP OF WILD CHERRY.

The 1890 formula is recommeded as producing a more desirable color and better keeping qualities than the formula of 1900.—DUNNING.

TINCTURE OF CARDAMOM, COMPOUND.

The substitution of the 1900 formula for this preparation in preference to the 1890 is believed to be a great mistake. The process of percolation should be used and the glycerin should be added afterwards. A preparation so prepared is of better physical appearance and possessed of better keeping qualities than by any other method tried. The 1900 formula gives a preparation which filters clear with great difficulty and has a color which is not the bright, attractive red that it should have.—DUNNING.

TINCTURE OF LAVENDER, COMPOUND.

The statements made with reference to the compound tincture of cardamom, apply to this tincture but in a lesser degree.—DUNNING.

The chairman has endeavored to interest the Food and Drug chemists in the U. S. P. and N. F. and has received some valuable suggestions but the number of responses has been too limited up to this time to warrant drawing definite conclusions. The replies so far received seem to favor a sharper line of demarkation between the U. S. P. and N. F. and more standards particularly where the "Purity Rubric" is given. There is also a demand that the results of modern research into the realms of adulteration and standardization be made more readily available than is at present possible with the wording of the Food and Drugs Law, and the decennial revisions of the Pharmacopœia.

In many quarters an authorized standard work representing the concensus of opinion of the medical profession on the medical properties and therapeutic value of drugs would be welcomed. This demand has already been met to a

certain extent, by the New and Non-official Remedies of the Council on Pharmacy and Chemistry of the American Medical Association; and it is hoped that when our Association gets its much needed home and laboratory, coöperative work of this character may be engaged in.

In conclusion it is recommended by this Committee that in the case of articles which may be used for either food or drug purposes, the standard and method of assaying of same be made identical whenever practical so as to avoid double standards, one for foods and another for drugs.

Respectfully submitted,

CHARLES E. CASPARI,
L. F. KEBLER,
ELIE H. LAPIERRE,
WM. MITTLEBACH,
E. FULLERTON COOK, Secretary.
H. A. B. DUNNING.
L. D. HAVENHILL, Chairman.

REPORT OF THE COMMITTEE ON UNOFFICIAL STANDARDS.

The work of the Committee on Standards for Unofficial Drugs and Chemical products during the past year, has been more limited and less actual progress has been made than in the preceding years. In explanation of this statement, it is but fair to explain that the demands upon the time of a number of the members who are engaged upon the work of the revision of the United States Pharmacopœia precluded their giving the same amount of attention and time as heretofore given to the work of this Committee. Illness has compelled one of our most active members to temporarily discontinue his labors on the Committe, and death has invaded our ranks and has taken one of our active members. With the completion of the active constructive work on the Pharmacopœial Revision the members of this Committee can again divert their time from that labor to the necessities of this Committee, and it is hoped that in the near future more rapid progress in our work can be reported.

Since the Denver meeting, monographs covering the following topics have been presented and discussed in our correspondence:

Metaphosphoric Acid
Fresh Egg Albumen
Baptisia
Delphinium
Eucalyptus Gum
Mullein Flowers
Blackberries
Horse-nettle Berries
Agaric
Asclepias
Calcium Glycerophosphate
Dioscorea
Extract of Beef
White Ash Bark
Raspberries
Balsam Poplar Buds
Iron Peptonate
Juglans
Cow's Milk
Manganese Peptonate
Oil of Bitter Orange Peel
Oil of Bergamot
Hen's Egg
Peptone
Pumice
Sambucus
Strontium Carbonate
Lime Juice
Trillium
Fresh Egg Yolk
Iron and Manganese Peptonate
Juniper Berries
Mace
Menyanthes
Oil of Orange Flowers
Oil of Bay
Passion Flower
Potassium Chloride
Rennin
Senecio
Fresh Apple Juice
Trifolium
Verbena

In the near future, a number of these will be tentatively adopted by votes of the Committee. It is recommeded that after such adoption they be referred to the Council and upon the approval of that body that they be printed in the Journal of the American Pharmaceutical Association.

In addition to the above list of topics the following items have been accepted by referees and their reports are anticipated in the near future:

Antimony Oxide
Burgundy Pitch
Chionanthus
Elecampane
Helianthemum
Mellilot Tops
Quinine Valerate
Strychnine Valerate
Galega
Orris
Parsley Root
Xanthoxylum Berries
Rumex
Antimony Sulphide
Caramel
Corydalis
Garlic
Hydrangea
Potassium Formate
Sodium Formate
Yeast, compressed
Nepeta
Pimpinella Root
White Sandal Wood
Zedoary
Thyme

As it is contemplated to include in the National Formulary Revision a number of formulas and drugs dismissed in the U. S. P. Revision, it will likewise be necessary either for this Committee or the Committee on National Formulary to give some attention to the standards for these drugs before they are admitted into the revised National Formulary and such approved monographs should be reported as part of the work of this Committee and printed in the Journal.

Respectfully submitted,

GEORGE M. BERINGER, Chairman.

THE UNITED STATES PHARMACOPŒIA AND NATIONAL FORMULARY IN THEIR RELATION TO THE FOOD AND DRUG LAWS.

A. R. TODD, LANSING, MICH.

The discrepancies in the standards of the U. S. P. and N. F. soon become apparent when an attempt is made to enforce drug laws in which these works are named as standards. It is of course a well known fact that these two books were not originally intended to be standards in the sense that they are now used, but since Congress and many State Legislatures in their wisdom have seen fit to incorporate the standards laid down by the U. S. P. and N. F. into the laws, it becomes necessary for officials charged with the enforcement of the law to use them.

It is the purpose of this paper, therefore, to offer some suggestions based on practical experience as a drug official, which would, in my opinion, vastly increase the worth of the U. S. P. and N. F.

In the first place we need a U. S. P. and N. F. that will be standards in every sense of the word. In order to accomplish this we must have a definite standard for every preparation possible in these two books, as well as accurate methods for assays. In the present U. S. P. there are 961 articles which may be divided into two classes, those that have an assay and those that have not. The class

that has an assay may be sub-divided into two parts. Those that have an assay for each ingredient and those that have an assay for the principal ingredient.

A resume of the U. S. P. shows that 29 percent of the preparations fall in the first class and have an official definition as well as a reliable assay. The other 71 percent have neither. Of the first class about 1 percent have an assay for each ingredient and 28 percent have an assay for the principal ingredient only. Of the latter, viz, those that have an assay for the principal ingredient, only Tincture of Iodine is a good example. Potassium iodide is used in this preparation for two reasons: First, to aid in the solution of the iodine and second to keep hydriodic acid from forming. Therefore, if potassium iodide is such an important ingredient, it would seem that a method for its assay should be incorporated and furthermore the official definition should state the amount of iodide the finished preparation should contain. Another good example of this same class is Elixir of Iron, Quinine and Strychnine. It is my opinion that this all important preparation needs revising if any does.

Have you ever attempted to calculate the iron content? The elixir is made from the Tincture of Citro-Chloride of Iron N. F., which is made from the solution of Ferric Chloride U. S. P., which in turn is made from metallic iron. Attempt to calculate the iron content before an average jury and see where you land. Before you get through the judge, jury and even yourself will be disgusted. Then in all probability the lawyer for the defense will arise and move that the case be dismissed as there is no official standard or official method of assay. It would seem, therefore, that this preparation should at least have an official definition stating the percentage of the principal ingredients that it should contain.

Seidlitz Powders is another important preparation. The U. S. P. says that the blue papers shall contain 10.33 grams and the white 2.25 grams. Now what if the blue papers contain only 9.5 grams and the white 1.9 grams? Shall we condemn the sample or pass it? Here again shows the need of a minimum and maximum standard for the principal ingredients of each and every preparation.

We need more methods of assay and more definitions and if the degree of experimental error or tolerance limit to be expected, be given with each method, it will save much time and work on the part of the drug officials and be another step towards uniformity. As it is if a U. S. P. or N. F. product is sent in by one of our drug inspectors which the chemist has not analyzed before, he must first try out the method on a number of known samples to see just how much variation he can allow.

Tablet Triturates it seems present an obstacle. Since it is impossible to place every triturate in the U. S. P. or N. F., therefore, why not have a general provision reading somewhat like following: "All tablet triturates shall contain that quantity of medicinal substance which is represented on the container thereof."

It is my understanding that the use of the word "about" will be eliminated in the next edition. This I heartily approve of as there has always been and still is a question of just how much variation we must allow on account of this word. In this connection it seems that there are a number of other words or phrases that could very well be eliminated.

In regard to Spirit of Nitre, there seems to be a difference of opinion on the

keeping qualities of this product. By experimentation it has been shown many times that this product may be kept in perfect condition for a number of months if kept in accordance with the U. S. P. Therefore, it would seem that the phrase "When freshly prepared" could very well be eliminated from the definition.

In conclusion it seems that the crying need of the U. S. P. is a clear, concise definition for each preparation, giving a minimum and maximum standard for the principal ingredients and a method for their determination. I am heartily in favor of converting the U. S. P. into a book of simples and the N. F. into a book of formulas, with provisions for a yearly supplement to each. Further, I believe it might be well to have all methods worked out and adopted by the A. O. A. C. take precedence over the methods of the U. S. P., and after approval by some official body representing the revision committee of the U. S. P., these methods be printed as a supplement to the U. S. P. This would give us an opportunity to use new methods and at the same time feel that they were official, without waiting for the ten year meeting of the revision committee.

MICHIGAN DAIRY AND FOOD DEPARTMENT LABORATORIES. 1913.

DOING A FAVOR.

Mr. Business Man, there are two ways of conferring a favor, and if you can grasp the right way and stick to it, it will mean many hundreds of dollars in your pocket during the course of your business life. When you are asked to do a favor, make your decision mentally. If you have to give your answer on the spot, you may have to do some quick thinking, but take a few minutes and make your decision mentally. If your decision is no, say no, and let that end it. But if your decision is yes, say it with a smile.

If you have to make a sacrifice, let it yield you a return. Do it gracefully. Do it with a smile. It seems a simple lesson, yet some men never master it. They go through life, granting as many favors as other men, and always doing it in a grudging way. This is a huge mistake.

We know of no better lesson for a young business man to master than this: If you have to do a favor, do it gracefully, and with a smile.—*National Druggist.*

Section on Education and Legislation

Papers Presented at the Sixty-First Annual Convention

REPORT OF THE SECRETARY FOR 1912-1913.

FRANK H. FREERICKS, LL.B., CINCINNATI, OHIO.

Your Secretary understands the duties of his office to be largely those of a Reporter of current Legislative and Educational events in Pharmacy. At least the duties of the office seem to have been so understood since the time of the precedent established by Dr. Beal. It will be my endeavor to keep within the limitations defined, but nevertheless if the Reporter should in some instance assume editorial authority, he trusts that this will be pardoned, and he certainly will not permit it to be of frequent occurrence.

During the last association year the United States Congress has been in almost continuous general or special session, commencing, of course, with the convening of the regular general session in December of 1912. There have been regular legislative sessions in forty of the several sovereign states. Congress continues in session at this writing, as do also the General Assemblies of Georgia, Oklahoma, Pennsylvania, Wisconsin and that of the State of Texas, which is now meeting in special session. It is consequently not possible to report finally on the action taken by them respectively with reference to legislation of interest to pharmacists. The General Assemblies of the States of Arkansas, California, Colorado, Connecticut, Delaware, Florida, Idaho, Illinois, Indiana, Iowa, Kansas, Maine, Massachusetts, Michigan, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oregon, Rhode Island, South Carolina, South Dakota, Tennessee, Utah, Vermont, Washington, West Virginia and Wyoming have been in session, and finally adjourned. The volume of legislation introduced in the several law making bodies of direct interest to Pharmacy has possibly been without precedent. The scope of intended legislation covers so wide a field, as to safely permit the statement, that somewhere every possible action and activity on the part of pharmacist was sought to be legislated about. Undoubtedly the banner for such intended legislation must be given the State of Massachusetts, where it is reported, that some one hundred and twenty-five (125) bills directly affecting pharmacy and some fifty (50) bills indirectly affecting it, were introduced at the last legislative session. It would be altogether impossible to report on all of the intended legislative changes, and in some instances where legislation enacted is not of direct application to Pharmacy we find ourselves compelled to either omit or to give but passing notice. The more important legislative enactments will be made a part of this report, in full, and in a few isolated instances we will add copies of defeated legislation, which seems to have been of special importance,

so as to afford an opportunity for studying the possible cause for defeat. Neither time nor your patience will permit of a detailed analysis and reference to all of the legislation enacted, and wherever possible, classification will be attempted with brief special reference, supplemented by complete copy of the respective laws. The classification referred to will ,of course, need to be confined to the more important subjects, embracing pharmacy laws; Anti-narcotic laws; anti-trust laws; weights and measure laws; laws pertaining to the sale of drugs by unqualified vendors, and finally such miscellaneous legislation which cannot well be classified and which yet either because of its aims or novelty requires some special reference.

Before endeavoring to make a classification of the various legislative measures, with particular reference to their special points of interest we will show the reported legislation as enacted in the several states.

There was no legislation pertaining to Pharmacy in the States of Arkansas, Delaware, Florida, Michigan, Missouri, Montana, New Hampshire, North Dokota, Oklahoma, South Coralina, South Dakota, Texas and Vermont. Nevada not reported.

The states in which legislation has been enacted, including those where legislation of vital importance was defeated, which will be specially mentioned, are the following:

California.—Amendments to the Poison and Narcotic law. Action on Food and Drug law. Amendment incorporating Sherley Act provision, using the word "for" instead of "and," not reported.

Colorado.—No report secured.

Connecticut.—Amendments to the Pharmacy laws. Enactment of a Narcotic law.

District of Columbia.—A bill granting Dental Supply Houses special privilege was held in conference committee.

Idaho.—Change in the Pharmacy law affecting the sale of Poisons and particularly Narcotics.

Illinois.—A proposed new Pharmacy law was defeated.

Indiana.—Change in the Pharmacy law. Enactment of a Narcotic law. Enactment of a Trading Stamp law. There were defeated special registration bills, a bill allowing registration to all who had been employed in drug store for ten (10) years without examination, bills pertaining to the Sale of Liquor in drug stores, and a bill allowing physicians to register as pharmacists without examination.

Iowa.—A change in Itinerant Vendor's law. A bill to limit compounding or manufacture of preparations containing narcotics to pharmacists, was defeated.

Kansas.—A new Pharmacy law.

Maine.—A Narcotic law.

Massachusetts.—Change in the Pharmacy law, defining drug business, requiring the annual registration of stores where a drug business may be conducted. Laws relating to Wages paid to Women and Minors, and providing that employees shall not work one day out of seven, from these features drug stores are exempted. Law regarding the sale of Insecticides. There was defeated the following legislation: Amendment of the Food and Drug act. A bill requiring the

State Board of Health to have analytic work done for the Watch and Wards Society. A bill to consolidate the Boards of Pharmacy, Medicine and Dentistry. A bill regarding the adulterations of Confectionery. A bill making it a crime for a minor under seventeen (17) to have Cigarettes in his possession. Bills changing the Weight and Measure law. A bill relating to the sale of Medicinal Tablets and the refilling of prescriptions containing Narcotics. A bill regarding the manufacture and sale of Fruit Syrups. Bills regarding the sale of Liquor, and Liquor Licenses to Druggists. Bill regarding sale of Matches. A bill to prevent merchants from entering into agreements regarding the sale of merchandise. A bill establishing the hours of Labor for Registered Pharmacists and Assistants. A bill exempting Pharmcists from Jury Duty. A bill preventing pharmacists from forming corporations to carry on the drug business. A bill requiring physicians to keep records of Narcotic drugs dispensed by them, was favorably reported, and finally referred to the next session of the legislature. Many other bills of indirect interest to the Pharmacists were defeated.

Minnesota.—Amendments to the Pharmacy law, defining the authority of the board, and the manner of its appiontment and governing the sale of certain poisons, etc.

Nebraska and Nevada.—Changes, if any, not obtainable.

New Jersey.—Anti-Trust laws affecting all business interests, and a so-called Unfair Competition and Unfair Trade Practice law.

New York.—A law regarding the sale and possession of Cocaine and Eucaine. A number of amendments to the Pharmacy law were defeated. Weight and Measure law becomes effective.

New Mexico.—Several bills introduced but defeated.

North Carolina.—Changes in the Cocaine law.

North Dakota.—A limited prerequisite law taking effect January 1, 1913.

Ohio.—A law taking the enforcement of all Pharmacy, Poison and Narcotic laws from the Board of Pharmacy, and placing it with an agricultural commission. A new Narcotic law. A law requiring truthful advertising. A law extending the power of the State Board of Pharmacy in the matter of suspending and revoking Certificates. An amendment to the law relating to the misbranding of drugs, making false statements as to purity or therapeutic effect a punishable offense. A bill to regulate the itinerant vending of drugs was defeated.

Oklahoma.—A number of bills were introduced of interest to Pharmacists, but it is reported that none of them became laws.

Oregon.—A new Pharmacy law becomes effective with June 3, 1913, greatly extending the powers of the Board of Pharmacy, requiring annual registration; concerning the sale of Narcotics and Poisons; providing an annual $200 License for Itinerant Vendors of Drugs, etc. Under regulations adopted by the Board of Pharmacy a limited pre-requisite law goes into effect with January, 1916, which is extended to a complete prerequisite with January, 1917.

Pennsylvania.—A Weight and Measure law. A law prohibiting the sale of Cigarettes and Cigarette Paper to Minors, and making possession of them by minors a misdemeanor. In this state an advanced Pharmacy bill was defeated, and an Anti-Narcotic bill having passed both houses of the legislature, was vetoed by the governor, both of said bills having the active support of the Pennsylvania

Pharmaceutical Association. A number of other pharmacy and narcotic bills were introduced and either defeated or not acted upon, as were also a number of other bills of lesser importance. A bill to specially regulate the sale of Bichloride of Mercury, introduced because of the late bichloride notoriety, was vetoed by the governor, as was also a bill requiring that prescriptions be compounded and dispensed under the supervision of a registered pharmacist or qualified assistant, holding a certificate of registration from the Pharmaceutical Examining Board. A bill supplementing a law requiring preliminary general education, and enlarging the authority and powers of the Examining Board with reference thereto, was also defeated.

Tennessee.—A bill was passed to permit any person with ten (10) years of drug store experience to register without examination, but this bill was vetoed by the governor. An effort was made by the Tennessee Association to secure the repeal of a so-called Doctor's bill, but this was not successful.

Utah.—A new Narcotic law was enacted.

Washington.—Unimportant changes in the pharmacy law.

West Virginia.—A law exempting pharmacists from the general prohibition law with reference to the use and sale of Official Preparations and Grain Alcohol under certain conditions, and providing under what conditions prescriptions for alcohol may be filled.

Wisconsin.—An amended Anti-Narcotic law under which the sale of Cocaine is limited exclusively on prescription. Wisconsin also made an appropriation for a Pharmaceutical Experiment Station to be operated in connection with the School of Pharmacy of Wisconsin of the State Univeristy. It is intended that this station shall co-operate with the United States Department of Agriculture in the cultivation of Medicinal Plants, and that it shall maintain a laboratory for the examination and standardization of medicinal substances.

Wyoming.—An Anti-Narcotic law was enacted.

United States.—Congress in August of 1912, enacted the Sherley bill, an amendment to the Pure Food and Drugs act under which false and fraudulent statement of therapeutic value constitutes misbranding. Congress enacted in March, 1913, another amendment to the Food and Drugs act requiring that measure, weight and count be stated on packages containing them, applicable only to foods. A vast number of bills are now pending in Congress, among which should be mentioned specially the Harrison Anti-Narcotic bill, the Sabbath bill, providing for sweeping amendments to the food and drugs act, similar to those of earlier date under the Richardson bill, the Owen Department of Health bill, the Oldfield bill, amending the patent laws, the Clapp-LaFollette, and several other bills to amend or supplement the Sherman Anti-Trust act; the Hughes bill, providing for an improvement in the status of pharmacists in the United States army. It should here be mentioned that the last Congress passed a General Deficiency bill, which was of some benefit to pharmacists, and also that pharmacists in the Public Health Service have secured increases in their salaries, as well as that under the naval appropriation bill the naval pharmacists now rank as other warrant officers, that is, they will be commissioned and have the rank and pay of ensigns.

A CLASSIFICATION OF THE MORE IMPORTANT LEGISLATIVE SUBJECTS.

Coming now to make a classification of the various more important legislative subjects, it must be understood, of course, that this of necessity can be only by comparatively brief reference. The various laws and some of the more important bills which failed to become laws will be added to this report, so that they may be studied in their entirety. First in the order of classification should no doubt be considered the changes in Pharmacy laws.

PHARMACY LAWS.

The states which have either enacted or considered changes in their Pharmacy laws have already been mentioned. Undoubtedly the most important changes, constituting practically new pharmacy laws, were sought for in the States of Illinois, Kansas and Pennsylvania, as advocated by the Pharmaceutical Associations of such respective states. The Illinois and Pennsylvania bills failed to become laws. The Kansas bill was changed in some of its important features as introduced under the direction of the State Association, before it became a law. As introduced these bills would have marked a splendid progress in Pharmaceutical legislation, though some features are open to criticism. It is of interest here, to dwell breifly upon some of their more important features which, no doubt, had much to do with their failure to become laws, or with being materially changed before they became laws.

Illinois.—The Illinois Pharmacy bill, which failed of enactment, provided as features of special importance, that patent or proprietary and all preparations containing cocaine, alpha or beta-eucine, morphine, opium, heroin, chloroform, canabis indica, chloral-hydrate and acetanalide (subsequently amended), should be sold only by Registered Pharmacists. To become registered as a pharmacist it was required to show graduation from a college of pharmacy. Registered pharmacists from other states might become registered only on proof that they are graduates from a college of pharmacy. A distinction was made between Registered Pharmacists and Local Registered Pharmacists with a provision that certificates for Local Registered Pharmacists should not be granted in villages, towns or cities, the population of which exceeds five hundred (500). It was also sought to make unlawful the sale of all so-called narcotics, and chloroform, canabis indica, chloral hydrate or acetanilide, or other poisons, or preparations, to habitual users of the same. To limit the sale of cocaine, alpha or beta eucaine, etc., entirely upon the written prescription of physicians, dentists and veterinarians, under certain prescribed regulations, and that the sale to pharmacists, physicians, etc., by wholesalers must be recorded in a book kept for that purpose. No doubt the prerequisite requirement, and the requirement to limit the sale of certain patent and proprietary medicines entirely to qualified people, had much to do with the defeat of the intended legislation. It is to be noted that the sale of cocaine, etc., was to be limited entirely upon the written prescription of physicians, etc., thus making it necessary for the Dispensing Physician to write prescriptions for such articles, and to retain them as a record, just as is the requirements for pharmacists.

Pennsylvania.—The Pennsylvania Pharmacy bill, which failed of enactment, contained the following features of special interest: A distinction between a

Pharmacy and what is termed a Licensed Store, and a licensed Pharmaceutical Laboratory. Licensed stores to be only at places at least three miles distant from a Pharmacy, to be only for the sale of certain drugs and preparations in original packages, put up under the supervision of a Pharmacist. A licensed Pharmaceutical Laboratory is defined to be a place other than a Pharmacy or Licensed Store, where drugs are compounded, and evidently not sold at retail.

The bill seems also to provide for the sale of proprietary medicines, and ordinary household remedies by other than those who are licensed to conduct a so-called licensed store. It provides an annual registration of the place of business. It prescribes both for a certificate of preliminary education and for college of Pharmacy graduation. It gives authority under certain conditions to refuse, suspend or revoke certificates. It would specifically permit practitioners of medicines, dentistry or veterinary medicine to administer and dispense drugs to patients, providing, however, that the drugs so dispensed conform to the standard of strength, quality and purity. It places the enforcement of the Pure Drug Laws with the Board of Pharmacy. It would require that all drugs other than physicians' prescriptions must be labeled to show the name of the article or preparation therein contained. It is not clear whether this means to show the contents of every preparation, which in such case would include proprietary medicines. It would require to have labeled as a poison any drug of which sixty (60) grains or less is liable to be destructive to adult human life, excepting from such provision physicians' prescriptions.

Kansas.—In Kansas the bill introduced through the Kansas Pharmaceutical Association was amended, and as amended it was enacted into law. The changes, however, were not with the approval of the Kansas Pharmaceutical Association. The most important change was with reference to a requirement under which physicians dispensing their own drugs, were required to write prescriptions therefor, except in cases of emergency, and to file these prescriptions just as pharmacists are required to do. This feature seems to have met with the determined opposition of physicians' supply houses, and dispensing physicians. The propriety of the requirement can hardly be doubted, and the Legislative Committee of the Kansas Pharmaceutical Association certainly deserves credit for advocating this advanved step. Other provisions were evidently intended to limit the sale of drugs to qualified people. Whether this intention would have been carried out under the bill submitted, leaves some room for doubt. The enforcement of the Pure Food and Drug Law is placed with the Board of Pharmay. The bill as amended and as it finally became a law is made a part of this report.

Oregon.—The new pharmacy law which went into effect in the State of Oregon on June 3 of this year, places with said Board the duty to regulate the practice of pharmacy, the sale of poisons and the enforcement of the Pure Drug Laws. A list of drug stores within each municipality or district must be furnished the Board of Pharmacy annually by the police authorities, upon request. Certain narcotics may be sold only on the written prescriptions of physicians, but physicians who dispense them are exempted from this provision, and they are also exempted from any and every other provision of the act, including that which

governs the adulteration of drugs. The law provides for an annual $200 license which must be taken out by itinerant drug vendors.

The changes in pharmacy laws as they have taken place in other states have been purely of an amendatory nature, and only those showing new features of general interest will be briefly mentioned, the amendments as enacted hereinafter being made a part of the report, where it has been possible to secure them.

Connecticut.—The enforcement of all laws pertaining to pharmacy and the dispensing and sale of drugs has been placed with the Pharmacy Commission. Preparations containing certain potent drugs may not be sold in country stores, and preparations recognized in the United States Pharmacopœia and National Formulary when sold in country stores must be prepared by a licensed pharmacist.

Indiana.—A provision was omitted which allowed graduated physicians as such to take pharmacy examinations in order to become registered as pharmacists.

Minnesota.—A noteworthy provision in an amendment to the Minnesota Pharmacy Law gives authority to support the State Pharmaceutical Association out of the registration fees which come to the Board of Pharmacy.

Ohio.—Under changes in the Ohio law all duties are taken from the Board of Pharmacy other than those of examination, and placed with an Agricultural Commission, the State Association having evidently sanctioned such a change in the law for the sole purpose of making the pure drugs law applicable to dispensing physicians.

ANTI-NARCOTIC LAWS.

No single legislative matter pertaining to pharmacy seems to have found greater attention than that of enacting anti-narcotic laws or of strengthening such existing laws by amendment. It is of great interest to note that during the past year six states have found it necessary to enact laws under which the sale of the more important narcotics must be made exclusively on the written prescription of physicians, etc., and such prescriptions must be kept as a record. The most noteworthy feature with reference to this being that dispensing physicians as well as pharmacists may so dispense only on such written prescriptions. The states which during the past year have enacted laws require dispensing physicians to write prescriptions for such narcotics and retain them as a record are, Connecticut, possibly Indiana, Maine in practical effect, Ohio, Utah, and possibly Wyoming. That such legislation is necessary for the proper supervision of traffic in narcotics can hardly be doubted, and it is certainly surprising to know that in direct opposition to the late laws of these state, Federal Anti-Narcotic Legislation as approved by the National Drug Trades Conference, would specifically exempt physicians from such requirement.

Indiana.—Indiana has enacted a new narcotic law, which marks a decided advance in such legislation, including as does the New York Cocaine law hereinafter referred to, a requirement for reporting all sales and distributions, once each month to the Board of Pharmacy, in detail. Such reports would seem to be necessary even with reference to prescriptions containing minimum quantities, while patent and proprietary medicines, etc., containing minimum quantities are specifically exempted. Under the Indiana law it is not to apply to the legitimate administration of said drugs, etc., by duly registered practicing physicians, veterinarians and dentists. It should be noted, that this exemption applies only

to the legitimate administration, and it would therefore seem not to apply to the dispensing of such drugs by physicians, etc., so that when such drugs are not administered direct by them, but are dispensed for use in their absence, then a strict construction of the law would seem to compel them to comply with the same requirements that are made of pharmacists when they are dispensed on physicians prescriptions.

New York.—In the State of New York a new narcotic law having reference only to cocaine and eucaine, known as the Walker law has been enacted, which because of some of its special features is certainly of interest. It would require that a certificate be given to each person to whom these drugs or their preparations are dispensed on physicians' prescriptions setting out such fact. It would seem to prevent also the sale of these drugs by pharmacists to dentists or veterinarians. It would require all to keep record of sales made, and make report thereon, exempting only physicians, which seems to be an unwarranted exemption. It would limit also the amount of these drugs that may be in the posession of all who under the law may possess them. Some of the features of this new law are likely to cause dissatisfaction and annoyance, but as a whole it marks an enormous advance in the method of controlling the sale and distribution of cocaine. The law in full will be made a part of this report.

Pennsylvania.—A new narcotic law was sought by the Pennsylvania State Association. It succeeded in passing both houses of the Legislature, only then to be vetoed by the Governor. The bill was to affect the sale of opium, morphine, heroin, codeine, their salts, derivatives or compounds. As it passed both houses, it was equally applicable to pharmacists and physicians, in requiring that the sale be only on written prescription, which was to be kept as a record for a period of five (5) years open to inspection, making exceptions in preparations and prescriptions containing minimum quantities. The Governor's veto seems to have been based on a most curious reasoning, in that he states therein, that no exception is made in the act to permit duly registered physicians to furnish medicines containing these drugs or their derivatives or compounds, and because a prescription may be filled only with written order for its refilling. It seems hardly possible that the Governor could have been allowed to understand that a physician who himself dispenses could not write a prescription and then dispense on said prescription just as a pharmacist would. The Governor's veto of this bill is certainly to be regretted, as it contains a number of other important features which are equally desirable with the requirement for a prescription in every case.

FEDERAL ANTI-NARCOTIC LEGISLATION.

The most important matter with reference to narcotic legislation is undoubtedly embraced in what is now known as the Harrison bill, pending in the United States Senate after having passed the House. This bill has been approved by the National Drug Trades Conference. It would seek to supervise and control the distribution and sale of the more important narcotics throughout the United States. Under it every one who would handle these narcotics for any purpose must be registered, and the distribution and sale throughout the country is to be supervised and traced by a requirement for making and keeping records. Sales by pharmacists to consumers, except in preparations containing minimum quanti-

ties, of opium and its derivatives, must be exclusively on the written prescription of physicians. The aim of this intended law should meet with the highest commendation of every one. It is extremely unfortunate that the bill in its present form would practically exempt dispensing physicians from its operation, excepting only that they must register and make record of their purchases. This feature is likely to undo all benefit which would otherwise be derived from the legislation. The bill also in its present form is of very doubtful constitutionality with reference to its particular application to physicians and pharmacists, and will possibly be without the desired effect on that account. It also requires every physician whether he handles the drugs or not to become registered, as a licensed dealer in them, for otherwise pharmacists may not fill his prescriptions.

ANTI-TRUST LEGISLATION.

The anti-trust laws, both national and state, are of vital importance to the retail drug trade in so far as they concern price regulation. In the State of New Jersey two laws of particular interest in that connection were enacted, which indicate a change in the trend of this kind of legislation. One of these acts seek to made unlawful in the sale of commodities, discrimination not only as to persons, but also as to sections, with reference to different rates or prices for such sections. The other would prevent unfair competition and unfair trade practices, and among other things would make it unlawful to attract trade by depreciating the value of products, or by price inducement, which would discriminate, whenever the goods carry a notice prohibiting such practise. This act, though of very commendable intent, is of doubtful value because of its indefiniteness. The two acts will be made a part of this Report. By far the more important anti-trust legislation is pending in Congress, and the number of bills introduced on the subject are almost without limit. During the session a bill has been introduced by Senator LaFollette, which besides many other radical features, provides for making unlawful so-called exclusive selling agencies. It would also seem to give authority for the judicial establishment of reasonable prices on commodities. Because of its aims in so far as they concern the retail drug trade the Clapp Supplementary bill would seem of greatest importance. Curious as it would seem, the Clapp bill has been frequently referred to as providing for class legislation, and for that reason its constitutionality has been questioned. A careful reading of the bill should make it apparent that class legislation in the objectionable sense is entirely avoided. The bill aims to extend the federal corporation law, which now provides for the incorporation of labor organization, by permitting men engaged in all kinds of activities to incorporate associations not for profit, the only limitation being that those who would organize such corporations must be engaged in a like calling or business, and that the individual members thereof if engaged in business shall not be employing therein in excess of $10,000. This last feature is entirely within constitutional limitations, but is not even likely to be the feature, which had been pointed out as objectionable in the sense of being class legislation. Aside from this, the bill provides for each separate class that they may be engaged in certain common activities, which as such are specifically designated, not to be in restraint of trade, and consequently not to come within the restrictions of the anti-trust law. To

sum up briefly the features of the Clapp bill in this connection it may be said that instead of providing for class legislation, which means the exclusion of one class as against the other, it aims to provide suitable legislation for every different class, in that it would prescribe definitely the activities in which such classes may be engaged as associations which shall not be regarded as being in restraint of trade.

WEIGHT AND MEASURE LEGISLATION.

As already stated, Congress has enacted an amendment to the Food and Drugs Act, which is to regulate the weight, measure or numerical count of goods in package form. This amendment, however, applies only to foods, and reads as follows:

Third. If in package form, the quantity of the contents be not plainly and conspicuously stated on the outside of the package in terms of weight, measure or numerical count; provided, however, that also exemptions as to small packages shall be established by rules and regulations made in accordance with provisions of Section 3 of this Act."

The Department of Agriculture, together with the other departments in control of the Food and Drugs Act, have commenced hearings and are ready to receive recommendations and suggestions, with reference to adopting proper regulations for the enforcement of this amendment.

In the State of New York a net weight and measure law was enacted in the year 1912, which is to go into force with February 1, 1914, and it is applicable to both food and drugs.

In the State of Pennsylvania such a weight and measure law was enacted during the last session of its legislature, but there are exempted from its application drugs, medicines, chemicals or pharmaceutical or proprietary preparations, used as medicines, and also toilet preparations. The New York law will be made a part of this Report, because of its direct interest to druggists. The only things to which it does not appear to be applicable are commodities for consumption on the premises; physicians' prescriptions; goods put in containers furnished by the purchaser; sealed containers where the numerical count is less than six; or the avoirdupois weight three ounces or less, or the measure two fluid ounces or less. Under a ruling it seems provided that packages of pills or solids which are of less than three ounces avoirdupois, when sold by weight do not come within the provisions of the law, and it seems also provided that the retailer will not be held liable where the goods are purchased from a wholesaler or manufacturer residing in New York, if a guarantee is made.

LAWS PERTAINING TO UNQUALIFIED DRUG VENDORS.

During the year a number of states enacted laws requiring annual license fees of from one hundred to two hundred dollars, for itinerant drug vendors. A number of other states have for some time had similar laws on their statute books. The constitutionality of such laws may be seriously doubted, on the ground that they discriminate between itinerant vendors of drugs as compared with itinerant vendors of other merchandise. Such discrimination being emphasized by the fact that nothing in the laws would justify it because of the

need for special qualification in the sale of drugs, by itinerant vendors. In other words, the laws contain nothing which would seem to base such special legislation on the ground of requiring special qualification. Laws of this kind, in order to be valid, must either apply with equal force to all itinerant vendors, whether of drugs or of other merchandise, or they must be based on the ground that special qualification and supervision is required to safe-guard the public health, and in such case they can most likely be *not made* to single out the itinerant vendor of drugs, but must apply with equal force to the vendor who has a fixed place of business. This is emphasized by a late decision of the Illinois Supreme Court.

In the State of Ohio an itinerant vendor's bill was introduced which possibly represents the most up to date effort to regulate such traffic. It, however, was defeated. The only doubtful feature of that intended law rests in the fact that a distinction is made between the unqualified itinerant vendor as compared with any other unqualified vendor. There may be some reason in the argument that with reference to the sale of drugs, the public good requires special supervision of unqualified itinerant vendors, which need not be had for unqualified vendors who have a fixed place of business, but the chances are that such a distinction would not be upheld by the court. A copy of the defeated bill, because of the advanced ideas therein set out, is made a part of this Report.

MISCELLANEOUS LEGISLATION.

Aside from the legislative activity which we have sought to classify, there are a number of legislative enactments in the different states which deserve some attention but which because of pertaining more or less to only one or a few states, can hardly be separately classified. Among the more important of these we find the following:

Liquor Laws.—There has been considerable legislation to govern the sale of liquor by pharmacists, but most of this is of interest only to the particular states in which it was either enacted or proposed. An exception to this rule is found in the State of West Virginia, which because of its prohibition laws lately enacted, and because of similar laws existing in other states, or being under consideration, makes it worth while to study the features of a prohibition law which provide exemptions for pharmacists, and which evidently are entirely satisfactory to the pharmacists of West Virginia, where such law exists. In the West Virginia prohibition law, Section 4 provides for exemptions which are applicable to pharmacists. Under such exemptions, grain alcohol may be kept by pharmacists for medicinal, pharmaceutical, mechanical and scientific purposes, as well as preparations made in conformity with the United States Pharmacopœia or National Formulary. Grain alcohol may be sold on the prescription of a physician, under certain restrictions. Also for pharmaceutical, scientific and mechanical purposes, and then only on the presentation of an affidavit. The section referred to is made a part of this Report.

Cigarette Laws—The State of Pennsylvania seems to have enacted a law prohibiting the sale of cigarettes to minors which is evidently the latest word on this subject, and it is, therefore, made a part of this Report.

Honest Advertising Laws.—Primarily through the activity of Mr. John Irving Romer, editor of Printers' Ink, a bill was introduced in the legislatures of many states which is to govern and make unlawful deception and misleading statements in advertising. Of the many states in which laws of this kind were introduced it can at this time be reported that they were enacted at least in the states of Michigan, Nebraska, New Jersey, North Dakota, Minnesota, Ohio and Washington. The bill as drawn is made a part of this Report. It has been criticised somewhat because it would make every false or misleading statement a misdemeanor without regard to such statements having been knowingly made.

Laws Governing Employment.—There seems to be of late quite an effort to make labor laws, and laws limiting the hours of employment, applicable to pharmacy. It would seem that laws of that nature were defeated in Massachusetts and Wisconsin. They seem to have had some support on the part of drug clerks. A number of states have enacted legislation with reference to the hours of employment for women and children, and where so enacted, these laws seem to govern their employment in drug stores as well as in other places of business.

Laws Governing the Sale of Bichloride of Mercury.—Owing to an epidemic of accidental deaths and suicides from bichloride of mercury, legislation was agitated in a number of states, and actually introduced in the State of Pennsylvania to strictly govern its sale. In Pennsylvania such special legislation required the veto of the Governor to defeat it. Agitation for this legislation would demonstrate the spasmodic effort of some, to legislate upon a given subject when it has received sufficient newspaper notoriety. To single out bichloride of mercury for special legislation from other equally or even more dangerous drugs and chemicals, seems the height of absurdity. On the other hand there would be some good ground for laws requiring that dangerous poisons, drugs or chemicals in tablet form, be required to have some distinctive color or shape, though it would be difficult possibly to draw the line. The best method of preventing epidemics of suicides from the use of dangerous poisons or drugs seems to be that of avoiding the suggestion through the daily papers.

Tariff Legislation.—Of course the proposed tariff legislation now under consideration in Congress has besides its general interest a special interest for druggists because of contemplated changes in Schedule (A). A general revision downward seems contemplated, and will no doubt be carried through. The only proposed advance in tariff rates is noted with reference to opium, and on this article the contemplated increase in rate is fully one hundred per cent.

Wood Alcohol.—Owing to the generally recognized need for legislation to protect against error and the danger from the use of wood alcohol, it is of interest to know that an ordinance governing its sale, is under consideration in the city of New York, and the intended ordinance is here copied. The use of the words "Wood Poison" has been generally criticised, and the words "Wood Naptha" have been advocated in their place.

Section 1. Any substance known as wood alcohol, in its crude or deodorized form, having the chemical composition known professionally as CH_3OH, is hereby prohibited from being sold under any other name than "wood poison," nor shall it be lawful to use said chemical

composition in any medical or toilet preparation. Said chemical composition, when sold as such, shall be labelled with a regulation poison label, with the following words added:

"This fluid taken internally, inhaled or used externally, is likely to produce blindness." Said words shall be printed in type not less than eight point, as known to the trade, in red letters, on a white field.

Section 2. Any person guilty of a violation of this ordinance, or any part thereof, shall, upon conviction thereof before a city magistrate, be punished by a fine of not less than $20 nor more than $50, and in default of payment of any fine so imposed, shall be committed to the city prison for a term of ten days, each day of imprisonment to be taken as a liquidation of each dollar of such fine.

JUDICIAL DECISIONS AND ADOPTED REGULATIONS OF GENERAL INTEREST.

There have been a few decisions during the year which are of such vital import to Pharmacy, as to require some special reference. This is also true in the case of some regulations which have been adopted by department officials. Only those of the greatest interest will be referred to.

The Corn-Syrup Case.—Under the Food and Drugs Laws of Wisconsin a case of alleged misbranding was brought, because of the use of the words "Corn Syrup" for "Glucose." This case was carried to the Supreme Court of the United States from the Wisconsin courts. The case concerned a shipment of so-called "Corn Syrup" from another state into the state of Wisconsin. Under the laws of Wisconsin it was admittedly misbranded, and such was found by the Wisconsin courts. However under the regulations adopted, for the enforcement of the Federal Food and Drugs Act, the branding of the article as "Corn Syrup" is permitted. The case involved a conflict of laws as between the state of Wisconsin and the United States. It concerned a shipment of the article, which was still in Inter-State Commerce and had not become property subject to the special jurisdiction of the state of Wisconsin, in keeping with the established principles of the law. The Supreme Court of the United States held that so long as the goods were in Inter-State Commerce the Federal law applied and the law of Wisconsin did not apply. Much has been said of the case, but a correct analysis of it simply shows a re-affirmance of a long-established principle. Nevertheless it emphasizes the need for like legislative measures pertaining to foods and drugs for both the Federal Government and for the several states.

The Sanatogen Case.—This is officially known as the case of the Bauer Chemical Company vs. James O'Donnell. It involved the right of a patentee to control the selling price of his patented product, in the hands of dealers who had bought and become the owner of such product. Until the decision rendered in this case, it had been generally recognized to be the law, that a patent gave such right of price restriction. The Supreme Court of the United States in a majority opinion of said court rendered in this case, for the first time has held that such right does not exist, and that even with reference to articles of merchandise protected by patent, there can be no price restriction by the manufacturer, to control the dealer, when such dealer has become the owner of the goods. With this decision all efforts at price protection, where goods have changed title, are finally declared illegal under the existing laws. While the decision would appear to be the last blow at price protection, it is likely to have great influence in bringing about a change in the laws with reference to the right of price protection.

The Pepsin Labeling Case.—This case officially known as that of the state of Pennsylvania vs. V. W. T. Tobin, is of general interest, in that it announces the

established limitation with reference to the right of making regulations, which in effect would be law-making. In other words, it brings out the point, that Boards and Officials who are charged with the enforcement of a law, must in the making of regulations keep within the terms of the law, and not adopt regulations of a character which would really add further law to the existing law. It is not necessary here to discuss whether the Board in question in this partticular case, exceeded its authority in making regulations. There seems to be difference of opinion as to whether the case in question was decided on the real point at issue, but whether gratuitously or otherwise, the fact stands out prominently, that in adoption of regulations for the enforcement of laws, Boards and Officials must not endeavor by means of attempted regulations to extend the true scope of the law which they are empowered to enforce. This is of particular interest to Boards of Pharmacy, for the reason that the latitude given them in the making of regulations is frequently very wide. The point in mind, is, that even though a given law apparently authorizes the making of rules and regulations, which extend the true scope of such law, it can nevertheless not be validly done, because a law making body cannot constitutionally delegate its law making powers.

The National Insecticide Act.—Under this Federal Act of 1910 a ruling has been made by the governing departments, that antiseptics and disinfectants come within the provisions of said Act, and must be labeled in accordince with its requirements.

Parcel-Post Regulations.—Since the last annual convention the Parcel-Post Law has become effective. The early regulations with reference to it are now well understood. The law as enacted after great deliberation and study, was criticised because of an apparent latitude given the Postmaster General acting under the direction and approval of the Inter-State Commerce Commission, to adopt regulations, which substantially would amount to extending the scope of the law. Some who supported the law as enacted, denied this, and claimed also, that no regulations would be adopted to extend the scope of the law, even though such power apparently existed under it. At this time it is evident, that those who took such position, and made such claims, were in error, because under the direction of the Inter-State Commerce Commission, changes proposed by the Postmaster General have now been adopted in the form of regulations which practically extend the scope of the law. Aside from the collection feature on parcel-post packages, and the limited insurance thereon, which went into effect with July 1st, the new regulations increase the limit of weight for parcel-post packages from eleven (11) pounds to twenty (20) pounds, and also make material changes in the rates for the first two zones established. The ruling of course places on their metal, all who have maintained that the law did not provide for such authority, and the matter is now one of general inquiry and investigation. Those who have made the contention, that a parcel-post would be of injury to merchants in smaller towns, and to retail merchants generally, and who accepted the zone law as of least evil, will undoubtedly find much to disturb them in this late action of the Postmaster General and of the Inter-State Commerce Commission.

Enforcement of Postal Laws.—Attention is here called to Section 217 of the Criminal Code of the United States. It forbids the mailing of poisonous agents

excepting under certain conditions to be specified by the Postmaster General. It prohibits entirely the sending of intoxicating liquors of any kind. Under this law the Postmaster General has adopted regulations which govern the mailing of medicines, containing poisons and anæsthetic agents, which permits manufacturers and dealers to send to licensed physicians, surgeons, pharmacists and dentists, when enclosed in packages, conforming with the conditions prescribed in Section 496 of the postal regulations. That is, when such articles are not of their own force dangerous or injurious to life, health or property, and when not in themselves unmailable, they may be admitted to the domestic mails from the manufacturer and the dealer therein, to licensed physicians, surgeons, pharmacists and dentists, when enclosed in packages in conformity with the conditions prescribed in Section 496. Such packages must contain the label of dealer in the article mailed. Section 496 has to do with requiring that the containers properly protect the article, but at the same time allow examination of the packages. It will be noted therefore, that medicines which in whole or in part are made up of poisons cannot be sent through the mails to the consumer. In connection with the use of the mail for the sending of articles of drug merchandise, much concern was caused during the year because of the arrest of many drug manufacturers and dealers for sending alleged prohibited articles through the mail. It is undoubtedly true, that many who were thus charged with a violation of the law, were entirely innocent of any guilty intent, and it is apparent that innocent persons may find themselves in trouble because of this feature of the law. It would seem the part of wisdom to secure a clearer understanding, and more definite rulings, so that persons who have no intent whatever to violate any law, will not innocently be brought into such technical violation.

EDUCATIONAL PROGRESS.

It would appear, that the largest part, if not all of the matter pertaining to educational advancement as originally of interest to this Section, is now more properly within the province of the Conference of Pharmaceutical Faculties, and the National Board of Pharmacy Associations. Your secretary has therefore sought to learn only advances which may have taken place in the various colleges, departments and schools of pharmacy. It is certain, that the information secured, is incomplete, but nevertheless it is a pleasure to report the advancement made in many institutions regarding which information has been secured. It must be understood however, that this information cannot in any way be regarded as complete. Many institutions, are maintaining the high standards which they have heretofore established, and no special reference will be made to them. The following institutions are recorded to have made changes as respectively indicated by them:

The Brooklyn College of Pharmacy.—It is reported that this college has been completely equipped with electricity for all purposes, thus enabling it to add features for advanced work. In additon to the two years course for the Degree of Graduate in Pharmacy, the college has arranged for a three years course for Graduate in Pharmacy leading to the degree of Master of Pharmacy, and a three years course for all applicants having four years of High School to their credit

at the time they commence college work, which leads to the degree of Pharmaceutical Chemist.

Buffalo College of Pharmacy.—There is reported an advancement of the course to 1250 hours. Seventy-five (75) percent passing mark in all subjects. Attendance requirements of ninety (90) percent.

Columbia University.—It has been arranged to meet all the requirements of the New York State Educational Department, and the number of hours of instruction will exceed the requirement by 51. It is also contemplated to work toward a gradual increase in the entrance requirement until it shall be four years of High School work.

School of Pharmacy of the University of Kansas.—It is reported that the entrance requirement will now be for three (3) years of High School training instead of two. In the fall of 1914 a four years training will be required.

Louisville College of Pharmacy.—The number of hours have been increased to 1256, and will be eventually increased to 1500 hours. A course on Legal and a course on Commercial Pharmacy has been instituted, as well as a series of Industrial Lectures.

Maryland College of Pharmacy, University of Maryland.—There have been added a course in Pharmaceutical Arithmetic and one in Pharmaceutical Latin, for the Junior year. An increase to the course in Dispensing and a course of Lectures on Pharamceutical Jurisprudence for the Senior year. The total hours have been increased from 1347 to 1462.

Massachusetts College of Pharmacy.—A site for a new college building has been secured. There have been added courses on Commercial Pharmacy, Pharmaceutical Latin, and Pharmaceutical Arithmetic.

University of Michigan School of Pharmacy.—The course leading to the degree of Pharmaceutical Chemist has been increased to three years, and a new course instituted for the degree of Ph. G. for two years work.

University of Minnesota College of Pharmacy.—A new four story fire proof college building has just been occupied. A medical plant laboratory has been instituted.

New Orleans College of Pharmacy.—The New Orleans College of Pharmacy is now affiliated with the Loyola University. A course on Commercial Pharmacy has been added. The requirements of the American Conference of Pharmaceutical Faculties have been met.

Medico Chirurgical College of Pharmacy of Philadelphia.—The course leading to the degree of Pharmaceutical Chemist has been changed to a three year course.

Northwestern University School of Pharmacy.—Entrance requirements have been raised to those of a graduate from an accredited High School, which constitutes an increase of three years of High School work.

Philadelphia College of Pharmacy.—There has been a month's increase in the college year.

Vanderbilt University, Department of Pharmacy.—The entrance requirements have been raised to three years of High School training.

Medical College of Virginia, School of Pharmacy.—A consolidation of the Department of Pharmacy, University College of Medicine, Virginia School of Pharmacy, Medical College of Virginia, became effective July 1st of this year. The entrance requirements have been advanced, the requirement for the degree of Ph. C. being graduation from an approved High School.

University of Washington College of Pharmacy.—A fifth year of work has been added to the curriculum, leading to the degree of Master of Science in Pharmany.

(An addition to the above report, showing the texts of various proposed and enacted measures will appear in the next succeeding issue.)

THE DAY OF THE BIG MOUTH.

Never has there been greater opportunity for men of really great ability—or big men—than there is right now. Business has grown bigger and bigger, and the call for big men has grown sharper and more insistent with it.

This is what has made this the age of the young man—the lack of big bore and large caliber guns in the ranks of the older and seasoned men.

Business has turned in despair to the younger fellows, and is begging them to be big—pleading with them to rise to the occasion—tempting them with enormous salaries, commissions, bonuses and partnerships.

But there is quite naturally a smaller percentage of big men in the younger set than among their older confreres, and the demand, already far in excess of the supply, goes on multiplying and increasing day by day.

But while there is a dearth of big men, there never was a time when there were more little men who think themselves big. Nor has there ever been a time when a little man with a big mouth could raise more of a row or disturbance.

It is the big mouth, not the big brain, that catches and holds the crowd. The big mouth is framing legislation, grabbing at fat offices, challenging established customs, questioning the wisdom of the founders of the republic, and impugning the integrity of all who have the courage to resist the advancing tide of unreason, unrest and destruction.

How long the big mouth will be the vogue, heaven only knows. But it dominates in politics and in legislation. It obtrudes upon every effort for reform, and, worst of all, it deludes a lot of credulous people into the belief that sound is better than sense, and noise superior to wisdom.

Come on, Doctor Sharp—bring on Vasectomy. Vive la eugenics.—*The Billboard, through The National Druggist.*

Section on Practical Pharmacy and Dispensing

Papers Presented at the Sixty-First Annual Convention

DROP WEIGHTS.

CURT P. WIMMER, PHAR. D. AND LEO ROON, PH. C.

It is a fact well known to physicians and pharmacists alike that the method of prescribing liquid medicines in the form of drops is not an accurate one. The only valid excuse for the use of the drop is the convenience of measuring, or better, dropping. As a unit of measure, a drop is decidedly unsatisfactory. Nevertheless we know that a large number of medicines are invariably dispensed or ordered to be taken by the drop.

The size and weight of drops varies considerably and depends upon many factors, such as the consistency of the liquid, specific gravity, cohesion, temperature, etc.

As soon as we use a certain standard drop as a primary unit and standardize all others accordingly we couple convenience with accuracy. The International Conference at Brussels in 1902 adopted a dropper which was constructed so as to deliver 20 drops of distilled water at 15° C. to weigh exactly one gram. The outer diameter of the delivery tube was to be exactly three millimeters.

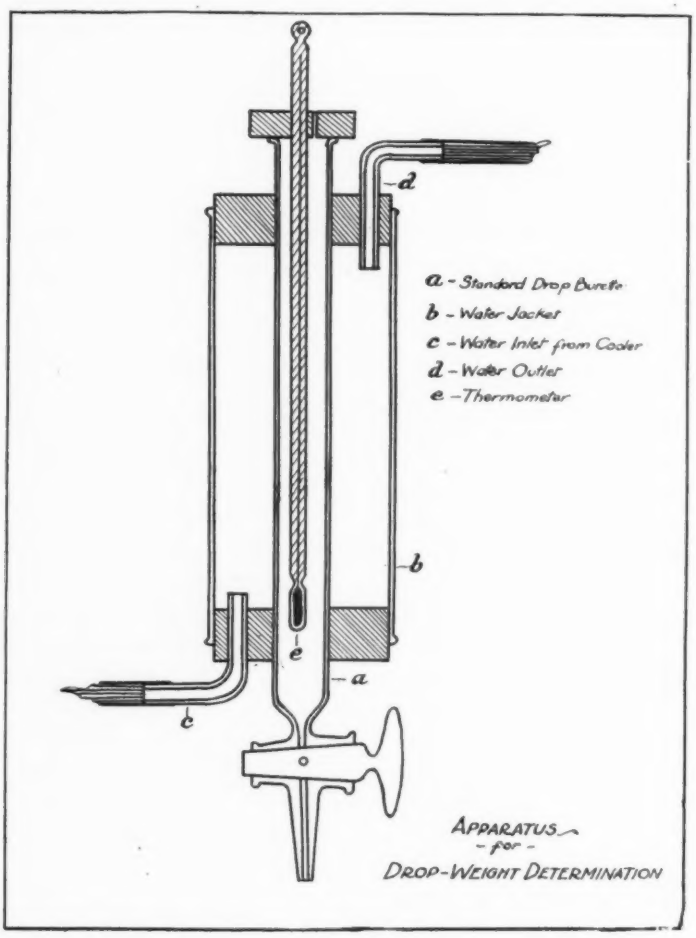
A number of so-called normal droppers are on the market, for example the Eschbaum Normal Dropper, the Lamprecht Patent Dropping Flask, the Viginta Drop Glass of Steinbuch, and others. All of these are constructed to conform with the requirements of the Brussels Conference. Having occasion to determine the weight of a certain number of drops of a liquid, it occurred to the authors that a burette might readily be constructed and used to deliver the 20 drops of distilled water at 15° C. to weigh one gram. The firm of Greiner & Co. furnished a burette according to our directions—20 cc. burette accurately graduated in tenths, 3 mm. in diameter for dropping surface delivering 20 drops of water to weigh one gram at 15° C. Upon testing the burette was found to be exact provided a certain rate of dropping was maintained. The difference in weight of the drop due to a changed rate of dropping amounted to about 1 to 2 milligrams per drop.

In order to maintain the temperature during the process of dropping, the burette was jacketed and water cooled to 15° C., passed through it. A thermometer was suspended in the burette. The accompanying sketch illustrates the apparatus used.

By means of this apparatus a large number of drop weights of the more common potent medicines were determined and were found in most instances to agree closely to those determined by Dr. Frederich Eschbaum. Eschbaum was the

first scientist to advance definite maxims relative to drop weights which maxims are interesting as well as important and we can only confirm the accuracy of such as we had occasion to try out. They are: First, the drop weights of solutions, even of the most concentrated ones, are practically equal to those of the solvent.

To cite an example, an aqueous 50 percent potassium iodide solution will have



almost the same drop weight as pure water and aqueous solutions of alkaloids, sugar, salts, extracts or gums have the drop weight of water. Alcoholic tinctures have the drop weight of alcohol.

Second, different liquids have different drop weights. The authors of this paper believe that the drop weight can be used, to a certain extent at least, to help in the identification of certain pure liquids and preparations.

Third, the drop weight depends upon the size of the dropping surface. The standard for this is 3 mm.

Fourth, Eschbaum states that rate of dropping as well as temperature may be neglected for practical purposes. The authors find that it is quite necessary to

preserve the temperature carefully and also to maintain a standard rate of dropping to get accurate results.

A number of drop weights of some of the more important medicines, as determined by Mr. Roon and bearing out the above statements, is appended.

Substance.	1 gm. equals at 15° c. Drops.	1 Drop weighs Grams.	1 Drop measures cc.
Acid, Hydrochloric	19.5	.051	.042
Acid, Hydrocyanic, Diluted	20.0	.050	.045
Acid, Nitric	22.9	.043	.025
Alcohol, Ethyl	65.5	.015	.020
Chloroform	58.8	.017	.010
Creosote	37.4	.027	.022
Ether	90.0	.011	.015
Fluidextract Belladonna	55.2	.018	.020
Fluidextract Ergot	52.6	.019	.020
Glycerin	23.1	.043	.030
Guaiacol	38.1	.026	.023
Oil Santal	41.5	.024	.020
Oil Wintergreen, Synthetic	40.6	.025	.020
Phenol, Liquified	35.5	.028	.025
Solution Arsenic and Mercuric Iodides	19.7	.051	.045
" Arsenous Acid	19.3	.052	.045
" Iodine, Compound	32.	.027	.025
" Potassium Arsenite	21.1	.047	.045
" Potassium Bromide, 10%	20.0	.050	.050
" Potassium Iodide, 50%	18.7	.053	.035
" Strychnine Sulphate (f3i=1 gr.)	20.0	.050	.045
Spirit Ammonia Aromatic	57.3	.017	.020
Spirit Nitrous Ether	65.5	.015	.017
Syrup Ferrous Iodide	18.9	.053	.040
Tincture Aconite	56.3	.017	.020
" Digitalis	48.1	.021	.020
" Ferric Chloride	53.3	.019	.018
" Hyoscyamus	50.8	.020	.020
" Iodine	63.3	.016	.015
" Nux Vomica	57.3	.018	.020
" Opium	50.9	.019	.020
" Opium Camphorated	50.9	.019	.020
" Strophanthus	57.2	.017	.020
Water, Bitter Almond	29.3	.034	.037
Water, Distilled	20.0	.050	.045

LIQUID SHAMPOO OR TOILET SOAP.

ERNEST R. JONES, PH. C.

Many inquiries have appeared in the current issues of the various drug journals for a liquid soap that a pharmacist could prepare and dispense under his own label. It is my purpose to discuss such a preparation and give working formulas for the same.

Selection of Fat.—Practically all of the oils or fats are adaptable to making liquid soaps excepting perhaps castor oil, my experience with this oil showing it to produce a soap having very poor lathering qualities.

Corn oil makes a good soap; saponifies easily and the soap is free from objectionable odor. It lathers quickly but the lather is too light. Sweet almond

oil and olive oil are too expensive, and these soaps also give too light a lather. Lard and tallow make very good lathering soaps but are hard to saponify.

Cottonseed oil is cheap, but is very hard to saponify without the presence of alcohol or other fats, and the lather is not heavy enough for a good shampoo.

Soaps made from any of the above oils or fats are poor latherers when used in hard water. It should be remembered that the hardness of water is due to calcium salts and sometimes iron and magnesium. These salts when brought in contact with soap solutions form oleates and stearates of the corresponding bases or metals, and as these compounds are insoluble they will not form a lather. Cocoanut and palm nut oils require about twice as hard a water to destroy their lathering qualities as does any other ordinary fat. For this reason,soaps that are to be used in hard waters should contain a good proportion of one or the other of these.

The question of solubility of soaps is also an important fact to be considered in obtaining a quick lather. Cocoanut and palm oils are of a peculiar composition and contain glycerides which when saponified are very soluble in water. An oleate of soda or potash is about ten times more soluble than a stearate, hence the more olein a fat contains the quicker it will lather. But there follows another difficulty: the lather from an oleate is too light to be entirely satisfactory, and consequently needs a certain amount of a stearate to give it body.

For these reasons I find that a combination of cocoanut oil, cottonseed oil, and stearic acid is required to produce the best lathering soap. The stearic acid might be replaced by tallow, as tallow contains considerable stearin, but I prefer the stearic acid as it greatly hastens the saponification by forming a soap at once with the alkali. This soap acts as an emulsifier between the oils and balance of alkali, thus rendering the completion of the saponification comparatively easy.

Alkali.—Potassium hydrate is the principal alkali used.

A mixture of sodium and potassium hydrates is said to impart better lathering qualities to a soap than when either is used alone. Only a very small quantity of sodium can be used, however, if the soap is to contain much stearate, as it would cause the soap to "jell" or harden.

Potassium Carbonate.—This is an excellent detergent. When used as a shampoo with soap, it leaves the hair light and fluffy. It is also an excellent water softener thus adding to the lathering properties of the soap.

While it is a very necessary ingredient of a good shampoo, it will be found too harsh for general toilet use for persons with a delicate skin. Such persons should not attempt to use a liquid soap for toilet purposes other than as a shampoo. They should be advised to buy only a high grade toilet soap, free from excess of alkali, and in certain cases, even an unperfumed soap will be necessary.

Precipitation.—Liquid soaps if allowed to stand in a cool place will give a white precipitate. The amount of this precipitate depends directly upon the amount of stearate present, and is caused by crystallization of the stearates or acid stearates. It is generally redissolved if allowed to stand a few hours in a warm place.

For this reason some persons may prefer to dispense liquid soaps in dark colored bottles.

Hardness of Water.—In different parts of the United States, different degrees

of "hardness" of water are met with. For this reason, I propose to give three different formulas, in order that one may choose the one adapted to his particular locality. For instance the "Soft Water" formula contains plenty of cocoanut oil for such water as is found in the vicinity of Boston. The "Medium Hard Water" formula would be satisfactory for such water as found in the vicinity of Detroit, while a district like Kansas City would require the "Hard Water" formula.

The formulas I would suggest are as follows:

Formula for 2500 cc.	Soft Water.	Medium Hard Water.	Hard Water.
Cocoanut Oil	100. gms.	200. gms.	300. gms.
Cottonseed Oil	400. gms.	300. gms.	200. gms.
Commercial Stearic Acid	100. gms.	100. gms.	100. gms.
Caustic Potash, U. S. P., 85%	120. gms.	126. gms.	132. gms.
Caustic Soda, U. S. P., 90%	12. gms.	12. gms.	12. gms.
Alcohol	125. cc.	125. cc.	125. cc.
Potassium Carbonate	20. gms.	30. gms.	40. gms.
Soft or Distilled Water	q. s.	q. s.	q. s.
Talcum	15. gms.	15 gms.	15. gms.

Melt the stearic acid and oils together and add the caustic potash and soda dissolved in 1000 cc. soft water. Boil carefully, to avoid burning, adding more water as necessary, until no alkali is perceptible upon tasting. Then add the potassium carbonate dissolved in 250 cc. soft water and boil for two hours more. Allow to cool, add the alcohol and perfume if desired, and add sufficient soft water to make 2500 cc. Let stand three days, or longer if possible, add talc and filter through double filter-paper until clear.

Perfume.—For cheap odors, oils of rose, geranium, sassafras, lavander, bergamot, caraway or citronella are good. Terpineol is also used, but is claimed by many to be irritating to the skin if used in too large a quantity.

For a pleasing, delicate odor of lilac character, I have found the following to be satisfatcory, this amount to be used to perfume 2500 cc. liquid soap of the above formula:

Syringeol	5.0 cc.
Oil of Rose, Artificial	0.5 cc.
Oil of Jasamine, Artificial	0.5 cc.
Terpineol	7.5 cc.
Oil of Rose Geranium	0.5 cc.
Oil of Cloves	0.5 cc.
Artificial Musk	0.5 gm.
Alcohol, qs. ad	20.0 cc.

Place in bottle and warm gently and shake until the musk dissolves.

Colors.—Some may desire to color their Liquid Soap.

For Yellow—Use 1 grain Lieber's Deep Yellow No. 3003 to 2500 cc. Liquid Soap.

For Green—Use 1 grain Lieber's Vertoline Green No. 1855 to 2500cc. Liquid Soap. A darker green may be had by adding a trace of caramel.

Pine Tar Shampoo.—Add about 10 grams of Pine Tar, dissolving this in the alcohol. The insoluble portion is removed when filtering, leaving a clear dark liquid which emits the tar odor strongly when used.

Conclusions.—The above formulas make excellent appearing products. They

produce an abundance of lather in all kinds of water, and when used as a shampoo, leave the hair light and fluffy. They contain no free caustic alkali, as an excess of fat over the amount of caustic alkali is used, and potassium carbonate is used to complete the saponification of the balance of the fat.

Do not expose liquid soaps to the cold as it causes precipitation of stearates. These will generally redissolve if the liquid is allowed to stand in a warm place.

NOTES ON THE DECOMPOSITION OF NEO-SALVARSAN.

FREDERIC E. NIECE, PHARM. D., NEW YORK CITY.

That Neo-Salvarsan is capable of producing toxic symptoms if used while in a decomposed state is a fact that must be more seriously borne in mind by those who have occasion to use it but once in a while.

By reason of its peculiar loose combination, it tends to deteriorate at the slightest provocation, eventually changing, within a few hours, from that of a comparatively harmless medicament, to that of a very poisonous and dangerous compound.

This is particularly true in those instances where the product is made into solution some hours in advance of its use.

This is a practice, however, that is being rapidly disregarded and one that Ehrlich himself greatly deplores, for it is generally known that Neo-Salvarsan is more readily altered by exposure than Salvarsan. Erhlich's precautions along these lines are emphatic and must be zealously heeded in order to avoid serious troubles. With the more improved appliances of administration now at our command, solutions barely become a half hour old before they are used. They should be used at once, however, after preparation.

It has been observed nevertheless, that toxic symptoms have developed in many cases notwithstanding the most careful technic. In this connection no one has as yet advanced a satisfactory explanation of the causes leading up to these conditions. Judging from what has been gleaned from this brief study, it would seem, that the body fluids, and the tissues and organs that convey them, would in a large measure be responsible for these symptoms by reason of the alteration of this compound after introduction into the body.

After once Neo-Salvarsan has been released from its sealed enclosures it begins to suffer a change. This change begins at once, but proceeds slowly as crystal by crystal becomes involved, by reason of atmospheric contact. So delicate is this decomposition at first, that it is imperceptible to the unaided eye.

This remains unnoticed until an advanced stage is reached, when suddenly it manifests itself by a darkening of the substance.

It was observed that high temperatures with a moist atmosphere, caused decomposition more readily than low temperaures with drier surroundings. Hence, to keep Neo-Salvarsan it must be in a dry state and free from atmospheric influences, just as we find it on sale in the open market.

In order to demonstrate the ease with which this product changes, the follow-

ing experiments were conducted under conditions that would obtain in a well-regulated laboratory or dispensing pharmacy.

A five percent solution was made, using ammonia free water, recently distilled. Four cc. of this fresh solution was placed in a tube and immediately corked. Another four cc. was placed in a similar tube but was not corked. The experiments were instituted at 3 p. m., December 3, 1912. The results obtained were as follows:

Closed Tube.—December 4, 1912, 12 noon (21 hours after preparation), a slight decomposition at the surface of the solution. The color is a light brown. The color occupies mostly the surface of the solution. No sediment. Slight suspended precipitate.

Open Tube.—December 4, 1912, 12 noon (21 hours after preparation), a decided decomposition at the surface of the solution. The color is a dark brown. About one-third of the volume of solution appears to be so colored. No apparent sediment but considerable flocculent particles in suspension.

Observations of December 6, 1912, three days after preparation, time 3 p. m.:

Closed tube reveals a deep brown colored solution, the color spreading throughout the solution. A slight sediment is observed.

Open tube shows a dark, brownish-black solution. The color is decidedly diffused throughout the solution, with a heavy sediment.

From this we are to infer that within 24 hours solutions of Neo-Salvarsan become absolutely unfit for use. As yet, no suitable chemical means has been found by which this decomposition can be retarded or detected in its early stages. In the case of the crystals the author has found that the microscope offers the best means by which this change can be detected far in advance of eye or reagent. The unaided eye detects the change after a danger point has been reached, while chemical reagents are of no avail. By virtue of the microscope, each crystal can be seen to gradually change in color, from that of its original yellow to that of a light brown and later on a dark brown, when under exposure. One of the injunctions given by the producers of Neo-Salvarsan is that it must not be used if it shows any signs of discoloration, and if once exposed be used up at once or before discoloration. Unused amounts should be rejected.

Fresh Neo-Salvarsan under the microscope presents a picture of oddly shaped, greenish-yellow crystals, in variable sizes, narrow and long and of a tubular appearance, resembling in some respects, small, narrow, and short, waxy or fibrinous renal casts. In nature they are waxy like, and glossy, and tend to transform into yellowish oil-like globules if kept for any length of time in a warm place and free from the air. This was quite noticeable with those mounted in water free cedar oil, under cover glasses on glass slides. In this manner I have kept crystals for several months without suffering much alteration other than a coloration of those near the edge of the cover glass where air was most likely to enter. The coloration which ensued in such an event was slow in forming and of a light brown color. In the case of decomposed crystals—plain or in solution—the microscope revealed the same to be of a deep, dark yellow to brown color, the depth of color depending largely upon the extent of the decomposition, the age of the preparation and the length of time exposed to external influences.

The dark colored sediment produced by prolonged oxidation of Neo-Salvarsan

in solution, is of a brownish-black color and granular. While under the microscope it appears to be lighter in color, and has the appearance of amorphous powder, that is, it is devoid of definite crystallization, other than that as observed later on. These formations are not all alike, since some are found to be more granular or flaky than others.

Decomposed solutions of Neo-Salvarsan all have a scum on the surface of the fluid which reveals a metallic lustre. The sediments as found in the above experiments when placed on a slide and studied by the microscope, in a dried condition, showed the presence of numerous well formed octahedral crystals of As_2O_3 which responded to all of the tests for arsenic. The sediment itself if heated in a closed tube gave the characteristic arsenic ring formation at the cool portion of the tube, with the formation of the typical crystals. These in turn were made to respond to other tests for arsenic.

The conclusion reached in the foregoing study is that Neo-Salvarsan begins to suffer a change immediately after it becomes exposed to the action of the atmosphere.

That the change is a gradual one of oxidation.

That toxic symptoms may develop as a result of this obscure decomposition—when used—long before any change can be detected by the unaided eye.

That the toxic element produced in consequence of this decomposition is mainly arsenic trioxid.

That the degree of toxicity depends entirely upon the amount of free arsenic trioxide present.

AN ANCIENT PATENT MEDICINE AD.

The patent medicine craze had a firm hold on its victims way back in Queen Anne's time. In the current *Atlantic* the following advertisement is reprinted from Addison's Spectator: "A Treatise of the Hypochondriack and Hysterick Passions vulgarly called the HYPO in Men and VAPOURS in Women" was advertised, as well as many nostrums of which the following is a typical notice:

The Vapour in women infallibly Cured in an Instant, so as never to return again, by an admirable Chymical Secret, a few drops of which takes off a Fit in a Moment, dispels Sadness, clears the Head, takes away all Swimming, Giddiness, Dimness of Sight, Flushings in the Face, &c., to a Miracle, and most certainly prevents the Vapours returning again; for by Rooting out the very Cause it perfectly Cures as Hundreds have experienced: It . . . causes Liveliness and settled Health. Is sold only at Mrs. Osborn's Toy-shop, at the Rose and Crown under St. Dustan's Church in Fleet-street, at *2s. 6d.* the Bottle, with directions.—*The Atlantic.*

Section on Commercial Interests

Papers Presented at the Sixty-First Annual Convention

CAUSES CONTRIBUTING SUCCESS OR FAILURE IN PHARMACY.

CLEMENT B. LOWE, PH. B., M. D., PHILADELPHIA.

It may be of some value to some future pharmacist if I should sketch out the conditions which make for success or failure in pharmacy. First let us consider those which influence success.

A Good Physique.—It goes almost without saying that one intending to take up pharmacy should have a sound physique, as it can scarcely be claimed that the long hours and close attention to business demanded of the busy pharmacist are conducive to health. It is not the smell of drugs that is prejudicial to health, as we are so often told, but the deficiency in oxygen through poorly ventilated stores. Of course this can be remedied to a considerable extent by careful attention to ventilation, especially during sleeping hours when plenty of oxygen should be secured, with but little draft. In the writer's opinion, some daily systematic outdoor exercise would be invaluable to many pharmacists. For this reason having store and residence in the same building is objectionable.

One pharmacist, known to me, who is over sixty years of age, walks five miles daily in going to and from his meals. Unfortunately there are other pharmacists who have been so long immured in their pharmaceutical cells that it seems almost impossible to overcome the inertia which chains them to their stores.

General Education.—Granted a good physique, one should also have a fair mental development, in fact the laws of some of our states demand it as a sine qua non to the study of pharmacy. While the amount of general education demanded of the embryo pharmacist is not yet large, it would be a great gain to him if he could be made to see that a still greater amount of education would open many doors of literature and science through which it would be both a pleasure and profit to enter.

Pharmaceutical Training.—Granted a good physique and a fair education, the next most important thing is the pharmaceutical training. In many cases the young man does not have much choice as to where he will secure his pharmaceutical training, he must take what he can get in his home town. If this is so in a small town, it need not be so in a large city where there are stores that have had an enviable reputation for years in turning out excellent pharmacists, the very fact of having been trained in such a store will at once secure a profitable situation.

Pharmaceutical Education.—It is our impression that young men frequently go to college too soon, frequently before they have acquired sufficient pharmaceutical experience, or an extensive enough vocabulary to understand many of the

things which it is tried to teach them; that this is so has been demonstrated by tests applied at different times to students.

Pharmacy is hedged about by so many laws that one hesitates to recommend additional ones, but it is our experience that a two years' pharmaceutical experience had best be had before entering a college of pharmacy. It is past our comprehension how a student without any experience can profit as he should by a pharmaceutical course, in fact the writer knows that some do not, but go limping throughout the course.

The College to Attend.—It would be treading upon dangerous ground to indicate the college of pharmacy that a student should attend. This much, however, may be admissible. According to the old adage, "you judge of a man by the company he keeps," so you can judge of the character of an institution by the character of the men that it sends out.

Clerking or Going into Business.—One can not lay down absolute rules about the matter, whether it is wiser for a clerk to endure the ills he knows of, or fly to those he knows not of and by plunging into business attempt to end them. That a clerk may save money without going into business is quite possible; the writer knows of a clerk, (unmarried, however) who has had a good situation for years, who through saving and wise investments has accumulated nearly $10,000, but he still clerks. One of the chief impelling causes of the young pharmacist rushing into business is his desire to get married, he has the marriage fever so badly that nothing that can be said to him will alter his mind, he has to be allowed to make his plunge into the sea of matrimony.

Location.—An important question is, where shall the young pharmacist that is going into business, locate. Too many graduates both of pharmaceutical and medical colleges locate in the city of their graduation and crowd the ranks already full to overflowing. There are localities especially in some of our newer states where their services would be in much greater demand. It is our opinion that the country town frequently offers superior opportunities to a well equipped graduate. If well trained in chemistry and bacteriology a business might be built up that would speedily bring both fame and fortune.

Adaptation to the Business—The Locality.—The character of the business will depend to some extent on the environment, but to a still greater degree on the pharmacist's own efforts. Some prosperous pharmacists in country towns make little effort to attract prescription business, they claim that commercial pharmacy is much more profitable, and that the time spent in putting up a fifty cent prescription would bring in several dollars in some other department. The writer knows of one pharmacist who nearly controls the sale of paris green in his county, all the granges buy of him, his annual sales amounting to quite a number of tons. But even to a commercial pharmacist a chemical education would be of much value, he could determine for himself the percent of arsenic in Paris green, and the strength of many other chemicals and preparations the sale of which depends upon quality.

Our position has always been, that if a graduate of pharmacy does not care to run his business along pharmaceutical lines, he has wasted time in his apprenticeship and pharmaceutical education, he had better have taken a short cut to a department store. At the present time, many of the so-called drug stores are

such only in name, they could not maintain themselves a week on their drug business.

The time seems to be rapidly approaching when there will be a complete differentiation between the commercial and the ethical pharmacy, the latter will have complete outfits for making chemical, urinary and bacteriological examinations.

Parenthetically it might be said, that we have somewhat wondered, what the effect of the increased medical requirements will have upon the medical practitioner of the future. A young man who has to spend ten years of his life in acquiring a collegiate and medical education can not afford to practice medicine at the prices formerly in vogue; neither will he have the time to do so, as the accurate physical examinations which the advanced physician will be required to make, will consume much time. One of these up to date physicians said to me that he could only examine half a dozen patients of a morning. The question naturally arises who will look after the respectable poor, will they be turned over to the tender mercies of the dispensary, or will they receive their medical aid from the family druggist?

Character.—Of all the essentials to success, probably the most important is character. A pleasing personality is of great value, but a character for probity is worth more. It must, however, be real; it cannot be assumed. It is related that a customer objected to the price which his druggist (a man of fine business reputation) wanted to charge him, saying that he could buy the article twenty cents cheaper down the street. The druggist said, why didn't you buy it there? The customer replied I would rather buy it of you, then the druggist said, "that *rather* will cost you just twenty cents."

We have thus far tried to sketch the causes underlying success in pharmacy, now we would briefly enumerate those tending to failure.

Poor Health.—The writer has frequently seen young men enter the drug business whom he knew would be forced out of it in a few years by the condition of their health.

Deficient Education.—This is not as frequent a cause at the present time as was the case some years ago, owing to the requirements of both state and pharmacy boards. However, a young man, if aware of his deficiencies, can afterwards make good by study and application. The writer knows of a graduate of pharmacy of some twenty years standing whose preliminary education, through lack of opportunity was quite meagre, who got through a college of pharmacy with difficulty, but since by his own efforts, aided by a well educated wife, has made a great success.

Poor Pharmaceutical Training.—The writer considers a good pharmaceutical training of so much importance that he pities the young man who makes dollars and cents the controlling factor in taking a position.

Second-Rate Colleges of Pharmacy.—Many a young man in selecting a college of pharmacy at which to acquire his education, makes but little effort to ascertain the best one, but is influenced largely by convenience and cheapness. The writer knows of a college of pharmacy that advertises a microscopical department where not a member of a recent graduating class had the chance to see through a microscope. Hardly second to the choice of a college is the question, what will the student get out of his college course; will he acquire barely sufficient to secure his

diploma and pass the state board, or will he secure a maximum of knowledge that will go a long way to making his future a success.

Insufficient Capital.—Insufficient capital, caused by undue haste to go into business, is frequently a cause of failure.

Fifty years ago a cash capital of $500.00 and good credit were often sufficient for a start in business. At the present time, ten times $500.00 is barely sufficient. The elaborate manner of fitting up stores, the varied stocks and cash payments, all call for greatly increased capital.

Poor Location.—Stores are frequently started, especially in cities, where there is no chance for success. Inducements are often made by operation builders to druggists to start stores where they are not needed and must come into competition with older and better equipped stores, and hence are doomed to failure or a pitiful existence. I have been told that half the retail drug stores of Philadelphia are mortgaged to the wholesale houses.

Not infrequently a young man who has clerked in a prosperous store for some years, overestimates his popularity and starts in business, as near the old stand as possible. As he trys to outshine the old store, his expenses are frequently greater and his business less, so that his profits may not equal his salary as a clerk, plus all the responsibility of the business.

Undue Competition.—We often hear it stated that competition is the life of trade, but it is quite as likely to be its death. A pharmacist who complies with the law has the legal right to open a store where he may choose, but it is another question whether he has the moral right to start a new store that he knows will seriously injure one long established. If taken to task about it, he would no doubt say like Cain, "am I my brother's keeper?"

New stores are not infrequently started, given a false boom through cut prices and fictitious sales, and are then unloaded upon some innocent victim.

Rapid Success is sometimes perilous, unless one has a well ballasted character. The writer knows of a young man of exceptional ability and address, who bought out a store in a wealthy city suburb. He quickly attracted a most profitable custom, but unfortunately became too intimate with some of the idle rich young men who frequented his store and was eventually sold out by the sheriff.

To sum up, the following conditions lead to success, viz.:

Good health, education, pharmaceutical training, pharmaceutical education, wise choice of a college of pharmacy, care upon going into business, a wise adaptation of the business to the locality where located and last but not least, a good character.

The following conditions tend to failure, viz.:

Poor health, deficient education, poor pharmaceutical training, unwise selection of a college of pharmacy, insufficient capital, a poor location, undue competition, too rapid success.

If the presentation of these pharmaceutical pros and cons shall influence favorably some young man's life, the purpose of the author in writing this paper will have been accomplished.

Section on Historical Pharmacy

Papers Presented at the Sixty-First Annual Convention

THE CENTENARY OF THE DISCOVERY OF IODINE.

OTTO RAUBENHEIMER, PH. G., BROOKLYN, N. Y.

In the beginning of the nineteenth century great changes took place all over Europe through Napoleon, the military Corsican, until he and his great army met their defeats at Moscow in 1812, at Leipsic, in 1813, and at Waterloo, in 1815. At the same time there was also a revolution in science going on, quite especially in chemistry. Since Anton Laurent Lavoisier (1743-1794) succeeded in abolishing all prejudices and in a masterly manner applied scientific principles to the explanation of chemical processes, a new clear way was opened to chemistry, and important fundamental principles and doctrines and a new chemical nomenclature were adopted.

In 1803 John Dalton (1766-1844), the noted physicist, gave the results of his researches, which lead to the foundation of the Atomic Theory, which was explained in his book, "New System of Chemical Philosophy," published in 1808. Dalton most certainly laid the cornerstone for a new theoretical chemistry. Three distinguished chemists born about the same year, a true triumvirate, namely, Berzelius, Davy and Gay-Lussac, representatives of three countries, Swenden, England and France, were especially instrumental in the construction of the "new chemistry." For this reason I beg to dwell upon these three men for one minute, in as much as this gradually leads up to the discovery of the elementary nature of iodine.

Baron Jons Jakob Berzelius (1779-1848) was one of the recognized authorities in chemistry. I want to emphasize the fact that Berzelius from 1802 was assistant, and from 1807, professor of medicine and pharmacy at the University of Stockholm, and pharmacy can be justly proud of having such an authority as one of its teachers. I can, however, not subscribe to the statement by T. P. Hilditch in "A Concise History of Chemistry," 1911, page 214, that Berzelius was a Swedish apothecary. The entire energy of Berzelius became devoted to one great aim, namely the minute investigation of chemical properties and the development of the atomic doctrine.

Sir Humphry Davy (1778-1829) served his apprenticeship with a certain Mr. Borlase, an apothecary of Penzance in Cornwall, but later studied physics and became professor at the Royal Institution in London. He first became prominent through the discovery of the intoxicating and stupefying properties of "laughing gas," our nitrous oxide. During the first thirteen years of the nineteenth century he accomplished his most memorable work, which effected a complete transformation in many branches of chemistry by the isolation of metals, that is the ele-

ments of the alkalies and the alkaline earths, by the galvanic current. An even still more important result was the discovery of the elementary nature of chlorine. It was Sir Humphry Davy who said: "Analogy is the fruitful parent of error."

Joseph Louis Gay-Lussac (1778-1850) was initiated into chemistry by the immortal Claude Louis Berthollet, the discoverer of potassium chlorate. Gay-Lussac became professor of chemistry at the École Polytechnique and professor of physics at the Sorbonne. As it is well known he was the discoverer of the so called "Law of Volumes," which proves the existence of a definite relation between the volume of a gas and its temperature. Gay-Lussac was assisted by Louis Jacques Thénard (1777-1857) professor of chemistry at the Collège de France, whose name is inscribed in the annals of chemistry and pharmacy as the discoverer of hydrogen peroxide.

At the time when Davy, Gay-Lussac and Thénard began their memorable investigations, hydrochloride acid gas was generally held to contain chemically combined water. The great Lavoisier was under the impression that it contained oxygen, and therefore gave it the name "Acidum Muriaticum," derived from "Muria," the Greek for saltwater, or seawater.

In 1810 Humphry Davy announced the epoch-making discovery that hydrochloric acid was a simple, indivisible chemical, containing no oxygen.

Many distinguished chemists at that time regarded chlorine as the oxide of a hypothetical element. Berthollet therefore in 1785 named chlorine "oxy-muriatic acid," which succeeded the name "dephlogisticated marine acid," given by Scheele.

Again Davy was the first to express the distinct opinion that chlorine was an element and suggested for it its present name in "Philosophical Transactions" for 1811, page 1. At first Gay-Lussac and Thénard did not want to agree to this, not wanting to disturb the chemical system of that time. It was the discovery of the elementary nature of iodine and its analogy to chlorine which proved the correctness of Davy's views.

The Discovery of Iodine.—Unlike the French apothecary, Antoine Jerome Balard, who discovered bromine in 1826 and whose memorial tablet is the first medallion which adorns the facade of the École Superieure de Pharmacie in Paris, another French pharmacist, Bernard Courtois, who discovered iodine in 1811, is not honored, in fact is almost forgotten, or is only too frequently mentioned in a disrespectful manner as a soap maker or soda manufacturer, or as a *salpêtrier.*

It should be remembered that in those times of war when almost as much gunpowder was used as there was bread consumed, saltpeter became very scarce. As early as 1540 an edict was issued in France commissioning officials named "Salpêtriers," who were authorized to seek for saltpeter in stables, cellars and other places where it was found naturally. La Salpêtrière in Paris, the jail and insane asylum, became famous as one of the natural nitre factories in the world. It might also be of interest to the A. Ph. A. members assembled at Nashville, that the nearby celebrated Mammoth Cave in Kentucky does, or rather used to contain natural deposits of saltpeter, which were used in the manufacture of gun powder during the war, just about a century ago.

Bernard Courtois, the discoverer of iodine, was a pharmacist. He was born in Dijon in 1777 and at an early age he became apprenticed to the apothecary, Frémy, at Auxerre, the grandfather of the celebrated chemist, Edm. Francois

Frémy, whose name is intimately associated with the preparation of anhydrous hydrofluoric acid in 1869 and the fluorination substitution process. Later young Frémy and Courtois worked together in the laboratory of the celebrated Antoine Francois Fourcroy (1755-1809) professor of chemistry at the Jardin du Roi, another descendant of pharmacy, his father being the apothecary to the household of the Duke of Orleans. Other assistants of Fourcroy were Thénard, mentioned above, Armand S. Seguin (1765-1835) who as early as 1795 recognized that tannic acid was different from gallic acid, and Louis Nicolas Vauquelin, (1763-1829) another authority whose cradle stood in an apothecary shop in Normandy. Courtois also became assistant to Louis Jacques Thénard, who had studied pharmacy and chemistry under the celebrated Berthollet, Fourcroy and Vauquelin, and who became professor of chemistry at the École Polytechnique and at the Collège de France, and who was made a Peer of France in 1832 by King Charles X.

Armand S. Seguin, the former demonstrator under Fourcroy became immensely wealthy through the supply of drugs to the army during the republic, the empire and the restoration. Courtois was employed in the laboratory of the banker-chemist at Jouy en Josas, and was helpful in the isolation of a crytalline substance, having an alkaline reaction, from opium. Seguin brought his researches before the Institute de France on December 24, 1804, in a paper "Sur l'Opium," which paper, however, was not published until 1814 in the Annales de Chimie, Vol. 92, page 225. He came very near getting the Montyou prize of 2000 francs, which was captured by the German apothecary, Friedrich Wilhelm Adam Sertürner "because he was the first to recognize the basic character of morphine and has thus opened the way for future discoveries in pharmacy, chemistry and medicine." It must be mentioned that such an authority as Vauquelin gave credit to Courtois for the discovery of morphine in 1804.

Discovery of Iodine.—The foregoing proves that Courtois was well fitted to become a research chemist equally as renowned as his eminent teachers. But he became commercialized and took up technical chemistry for a livlihood and in 1804 began the manufacture of artificial saltpeter in the Rue du Rigard in Paris. He employed the ashes of sea weed, called "varec" in French and "kelp" in English, to prepare a lye, which, of course, contained principally sodium carbonate. This was decomposed with nitrate of lime, which formed a solution of sodium nitrate and the precipitate of calcium carbonate. When Courtois used this method in a copper boiler, he discovered that the solution attacked the metal. He at first suspected that the cause of this trouble lay in a poor quality of varec, but after numerous experiments he found that the ashes of all sea weeds had the same deteriorating effect. Courtois furthermore discovered that after the crystallization of soda from the lye of varec, the remaining mother liquor when accidently heated with sulphuric acid evolved beautiful violet vapors, which sublimed into scales having a grayish-black color and a bright metallic lustre. It was Courtois who discovered that when this substance was treated with ammonia an explosive compound was formed, and it was Courtois who recognized the corrosive action of the scales upon organic matter.

As usual, commercial or industrial chemists are too busy for further and deeper researches. Courtois had to make saltpeter and had no time to investigate the

violet vapors or the metallic scales. However, he communicated his experiments to his friend Clément, a chemist, who presented a report of these interesting experiments to the Academy of Sciences at Paris on November 20, 1813, one hundred years ago, and eighteen months after Courtois discovered the new substance.

It might be of historical interest, especially to pharmacists, that Charles Bernard Désormes and his son-in-law, Clément, whose first name, however, is not recorded in any of the numerous works which have been consulted by the author, operated an alum factory at Verberie. The names of Clément and Désormes are perhaps best known through their thorough investigation of carbon disulphide and their splendid pioneer work in thermo-chemistry.

Discovery of the Elementary Nature of Iodine.—Sir Humphry Davy, the "traveling chemist," on his way to Italy, by special invitation of Emperor Napoleon, stopped over in Paris and was present at the reading of this paper by Clément. Up to that time no suggestion was made either by Courtois or Clément of the elementary nature of this substance. Clément gave the English chemist some of the crystals and asked him to further investigate them. Sir Humphry Davy, who in 1811 had discovered that chlorine was an element, suspected the very same thing of this substance and commenced experiments at once which convinced him of the truth of this surmise.

However, Gay-Lussac, the French chemist, got ahead of the slower English authority by presenting the very same facts in a paper which he read at the Academy of Sciences on December 6, 1813. Five days after the reading of this paper, Sir Humphry Davy, complained of this trick played by the French chemist, in a letter to Mons. le Chevalier George Leopold Cuvier, the Commissioner of Education, making the claim of priority. The matter was referred to Ferdinand Hoefer, the great French historian, who thoroughly investigated the circumstances, and thereupon announced that Sir Humphry Davy was entitled to the discovery of the elementary nature of iodine. Even the French historian Raoul Jagnaux in his *Histoire de la Chimie,* I, pp. 522-524, who quotes the pharmacist-chemist Wurtz on the title page:

> "La chimie est une science francaise
> Elle fut constituée par Lavoisier d' immortelle mémoire."

(Chemistry is a French Science which Lavoisier made immortal), gives credit to Sir Humphry Davy as the first to recognize the elementary nature of iodine. It is therefore surprising that most of the books give this credit to Gay-Lussac, whose name has been made immortal by his classic "Mémoirs d' Iode," published in 1814.

Etymology of the word Iodine.—Sir Humphry Davy named the substance "Violaceous Gas," on account of the color of the vapor. From the Greek *"iodes,"* that is violet-colored, Gay-Lussac named the element "Iode" in French, from which the Latin "Iodum," the German "Jod" and the English "Iodine" are derived. Therefore Gay-Lussac deserves credit for the proper name of this element. The Greek "Ion" for "violet" was originally "Fion," from which the Latin "Viola," and the German, English and French "Violet" are derived.

Introduction of Iodine in Therapeutics.—Jean Francois Coindet (1774-1834), the founder of a generation of physicians, studied in Edinburgh and became one

of the best known physicians of his time, settling in Geneva, Switzerland. Spongia Usta, or burned sponge, was largely used at that time against scrofula and goiter and Coindet suspected that iodine was its active constituent, the same as in sea weed, which was verified by Jean Baptiste Dumas (1800-1884), the celebrated pharmacist-chemist of Geneva and Paris. Coindet thereupon promptly introduced iodine and preparations of iodine into therapy for the same purpose with great success. J. G. A. L. Lugol (1786-1851), the celebrated physician at the Hospital Saint Louis in Paris, was also instrumental in introducing iodine into therapy and his name will live forever in pharmacy and medicine on account of Lugol's solution.

Rewards.—In the case of iodine, science has been thankful to the pharmacist who discovered the substance, and also to the physician who introduced it into medicine. In 1832 the Academy of Science in Paris awarded 6000 francs to Bernard Courtois, who had been ruined financially in 1815 by the competition of natural, duty-free saltpeter from Chili with artificial saltpeter, or sodium nitrate, which he was manufacturing. However Courtois became a spendthrift and died in poverty in Paris in 1838.

The Academy of Science also awarded a prize of 3000 francs to Coindet, the physician who had so promptly made medical use of the discovery of Courtois.

Conclusion.—May this story of the discovery of iodine and the determination of its elementary nature, just one hundred years ago, serve as an example of the interesting history of pharmacy and chemistry! May it arouse and strengthen the interest in the history of our noble profession and may the discoveries and work of the "fathers of pharmacy," men actively engaged in the drug business, be an everlasting credit to pharmacy!

HISTORICAL SKETCH OF THE ALBANY COLLEGE OF PHARMACY.

WILLIS G. TUCKER, M. D., AND ALFRED B. HUESTED, M. D.

The idea of organizing a school of pharmacy in Albany originated with two gentlemen interested in pharmaceutical and educational matters in the late seventies. A conference, at which several representative pharmacists were present, was held November 18, 1878, and it was decided that a meeting of the pharmacists of the city should be called for the purpose of determining whether it was advisable to form a pharmaceutical association with a view to the establishment of a school of pharmacy to be conducted by such association. A meeting was called by Dr. Willis G. Tucker, of the medical college faculty, and Mr. Gustavus Michaelis, of the Albany Pharmaceutical Company, for December 2, and at this meeting, which was held in the chemical lecture room of the medical college and attended by about twenty Albany pharmacists, a committee was appointed to prepare a plan of organization. So little interest, however, was shown in the matter that no subsequent meeting was called, nor was any further action taken to secure the organization of a school by the Albany pharmacists.

In the fall of 1880 the project was revived, and Dr. Tucker and Mr. Michaelis

consulted with Archibald McClure, Esq., a wholesale druggist and representative public-spirited citizen, Dr. Jacob S. Mosher, then registrar of the medical school and one of its professors, and Joseph W. Russell, secretary of the board of trustees of the medical school, and it was decided that a better plan of organization than that previously proposed would be to establish a department of pharmacy in Union University. Under the charter of 1873, power was given to the board of governors of Union University "to establish such departments of science and learning in, or in connection with, said (Union) university as they may deem proper." A plan of organization was drawn up by Dr. Tucker, approved by the others, and presented by them to Dr. E. N. Potter, then president of the university. He heartily approved the project and presented it to the board of governors of the university, and at the annual meeting of this board, held June 21, 1881, the Albany College of Pharmacy was created to constitute the Department of Pharmacy of Union University. A board of trustees was immediately appointed and the school incorporated as the Albany College of Pharmacy, comformably to the laws of the state, August 27, 1881.

The original board of trustees consisted of Joseph W. Russell, president; Louis Sautter, vice-president; Luther H. Tucker, treasurer; Eliphalet Nott Potter, D. D., LL. D., Jacob S. Mosher, M. D., Charles Newman, Arichbald McClure, Alfred B. Huested, M. D., Edward P. Waterbury, LL. D., and Addison A. Keyes, with Dr. Willis G. Tucker as secretary *ex officio*. The board organized promptly and appointed the following faculty: Jacob S. Mosher, M. D., Professor of Botany and Materia Medica; Willis G. Tucker, M. D., Professor of Chemistry, and Gustavus Michaelis, Professor of Pharmacy. Dr. Mosher was made president and Dr. Tucker, secretary, of this faculty. A circular was promptly issued to the pharmacists in the state and neighboring territory, announcing the organization and opening of the school, permission having been obtained from the faculty of the medical college to use the lecture rooms and chemical laboratory in the college for purposes of instruction. This privilege rendered it possible for the new school to enter at once upon its work with little preparation and under most auspicious circumstances. And the school owes much of its subsequent and continuous success to the kindly and liberal co-operation of the medical school which has permitted it to carry on the larger part of its work in the medical college building. At a later date a pharmaceutical laboratory was established elsewhere, but the greater part of the work of instruction has been carried on in the medical college and this has been of inestimable value to the school.

In 1881 when the school was organized there were, according to the report of the U. S. Commissioner of Education, but 14 colleges of pharmacy in the United States with but one, in New York city, in the state, and none nearer to Albany than this old school and those in Boston, Pittsburg and Cincinnati. On the north the nearest school was at Montreal so that Albany seemed to the founders of the school an excellent location for such an institution.

The first course of lectures opened October 3, 1881, with 21 students in attendance, three of whom having attended courses elsewhere, constituted a senior class and were graduated with the degree of Ph. G., at the end of the session. These first graduates of the college were Albert R. Griffith, Gustave Kreutzer and John

S. Phillips, all of them now deceased. During the second session 32 students were in attendance and a class of ten was graduated, and during succeeding years the attendance has varied from 37 to 105. The number of graduates has been as follows: 1882, 3; 1883, 10; 1884, 13; 1885, 8; 1886, 10; 1887, 18; 1888, 11; 1889, 22; 1890, 18; 1891, 26; 1892, 22; 1893, 14; 1894, 18; 1895, 17; 1896, 16; 1897, 23; 1898, 27; 1899, 20; 1900, 31; 1901, 29; 1902, 16; 1903, 25; 1904, 21; 1905, 27, and 1906, 36.

The first secretary of the faculty was Dr. Tucker, who resigned the position in 1884, and was succeeded by Dr. Alfred B. Huested, who in 1883 had been appointed Professor of Botany and Materia Medica to fill the vacancy occasioned by the death in August of that year of Dr. Jacob S. Mosher. Dr. Mosher had been a member of the original faculty and his death was a great loss to the school in which he had from the outset taken the deepest interest and to the success of which he had in no small measure contributed. Dr. Tucker was made his successor as President of the Faculty and afterward its Dean, the designation of the presiding officer of the faculty having been changed to the latter title in conformity with the established usage in the other departments of the university. No further change occurred in the professorships until 1903 when Professor Michaelis resigned the active professorship of pharmacy and Garret V. Dillenbeck, Ph. G., was appointed Associate Professor in this department. Other additions to the teaching staff have been as follows: Frank P. Huested, Ph. G., director of the pharmaceutical laboratory, 1892; Edward J. Wheeler, A. B., instructor in chemistry, 1893; Frank Richardson, Ph. G., instructor in materia medica, 1893; Andrew MacFarlane, M. D., lecturer on microscopy; Frank Richardson, Ph. G., director of the pharmaceutical laboratory, 1895; Theodore J. Bradley, Ph. G., lecturer on pharmacy; De Baum Van Aken, Ph. G., instructor in chemistry; Thomas W. Jenkins, M. D., instructor in microscopy, 1896; De Baum Van Aken, Ph. G., lecturer on pharmacy; Theodore J. Bradley, Ph. G., instructor in chemistry, 1899; T. J. Bradley, Ph. G., lecturer on physics and pharmaceutical mathematics; G. V. Dillenbeck, Ph. G., lecturer on pharmacy; T. W. Jenkins, M. D., instructor in materia medica and pharmacognosy; Edwin C. Hutman, Ph. G., director of pharmaceutical laboratory, 1903; Arthur T. Laird, M. D., instructor in microscopy; James E. Huested, instructor in materia medica and pharmacognosy, 1904; William A. Larkin, Ph. G., instructor in physics, in 1906. In 1896, De Baum Van Aken succeeded Dr. Huested as secretary of the school, resigning the position on leaving Albany in 1901, and being succeeded by Theodore J. Bradley.

In 1883 a board of examiners, consisting of A. B. Huested, M. D., Archibald McClure and Louis Sautter, was appointed to represent the trustees in the final examination of candidates for graduation and successive members of this board, which was abolished in 1903, have been, Charles H. Gaus, Frank Richardson, De Baum Van Aken and Edwin F. Hunting. Additions to the board of trustees to fill vacancies occasioned by death or otherwise have been: John M. Bigelow, M. D., 1883; William J. Walker, 1889; Harrison E. Webster, LL.D., successor to Dr. Potter as president of the university; Douw H. Fonda, and Charles H. Gaus, 1890; Andrew V. V. Raymond, D. D., LL.D., successor to Dr. Webster as president of the university in 1896; Otto Scholz, 1897; Willis G. Tucker, M. D., 1898;

Arthur L. Andrews, 1899; Samuel B. Ward, M. D., 1903, and Edward N. McKinney, 1904.

The course of instruction at the present time covers two years as at the outset, but the sessions have been lengthened from 21 to 28 weeks and the amount of instruction by lectures, recitations and laboratory exercises has been increased over fourfold. When the school was organized its graduates were legally entitled to engage in the practice of pharmacy, but at a later date a State Board of Pharmacy was created and all graduates, or other persons, desiring to enter upon the practice of pharmacy, were required to appear before this board for examination and secure from it a license. In 1904 a law was enacted in the state which required all candidates for license appearing before the State Board of Examiners to be graduates of a college or school of pharmacy registered by the Board of Regents of the State of New York, and which requires not less than fifteen Regents' counts or their equivalent, as a condition for entrance. This law took effect January 1, 1905, and its effect has been to elevate very materially the standing of pharmacy as a profession in this state.

In 1883 an alumni association was organized, and this association has grown in strength and influence and aided very materially in promoting the work of the college and in encouraging social intercourse among its members. It holds an annual meeting on commencement day and a dinner on the evening of that day at the close of the commencement exercises. During recent years this dinner has been attended not only by the members of the association but by their friends of both sexes. The school being co-educational, and having had a number of women in its classes many of whom have taken high rank, this plan has proven very satisfactory and has done much to promote interest in the work of the association.

In 1910 the college was able to secure excellent accommodations at 43 and 45 Eagle street. These rooms were remodeled at an expense of several thousand dollars and the laboratories, pharmaceutical and microscopical, were more completely and thoroughly equipped. In 1911 the senior chemical laboratory was also accommodated in the new quarters, so that now the lectures, all of the laboratory work and exercises of the college, except the junior chemical laboratory, are held in the new quarters.

The school is now excellently and quite permanently located, in quarters well adapted for its needs, and can offer accommodations and instruction for those desiring to become graduates in pharmacy equal to the advanced requirements of the present day. Credit for the present excellent housing and equipment of the college is due to the wisdom and foresight of Theodore J. Bradley, whom we were sorry to lose, but glad to see advanced to the position of Dean of the Massachusetts College of Pharmacy. His loss has been compensated by the addition to the teaching force of Manser T. Stone and Leroy G. Mathews, graduates of a few years since, and Dr. Alfred B. Huested has again taken the position of secretary.

Papers Presented to Local Branches

THE ELEVENTH INTERNATIONAL PHARMACEUTICAL CONGRESS.*

JOSEPH P. REMINGTON, PHILADELPHIA.

On September 17, 1913, there assembled at The Hague a notable gathering of those interested in pharmacy in one or the other of its varied occupations at the Kurhaus, Scheveningen. The attendance was larger than usual and of course The Netherlands, Belgium, and nearby countries sent the largest number of delegates. The proceedings were conducted with harmony and were pervaded by a real spirit of internationalism.

A large number of papers on chemical and pharmaceutical subjects were presented, some of which were not read because of lack of time, but the range of the subjects was greater than at any previous Congress. The attendance at the lectures given by Professor Alexander Tschirch, of Berne, on the Enzymes, Professor Emile Bourquelot, of Paris, on the Synethesis of Glucosides by Ferments, and the illustrated lecture by Professor H. P. Wijsman, of Utrecht, on the Drug Cultivation of the Dutch Indies, was most notable. Professor Tschirch's paper was very interesting; he spoke in the German language and occupied nearly an hour and a half in its delivery. Professor Bourquelot's lecture was full of valuable facts derived from his researches on the Glucosides. Both of these lectures will be published soon and will be available for comment. Professor Wijsman's lecture was of a totally different character. He had visited Java and illustrated his subject by lantern slides and cinematograph. Some of the films were beautiful and the whole process of the cultivation, including the stripping, collecting, packing, and every detail was shown with the persons moving about engaged in the various details; it was most impressive and entertaining. It brought home to every hearer operations conducted in far-off countries and one could well imagine that he was on the spot and actually seeing the whole process of the cultivation of Cinchona Bark. Why can we not have in the annual meetings of the American Pharmaceutical Association such an illustrated lecture on some subject of national importance?

Space will not permit a report in detail of the individual papers, but they will be open for publication in this country and our enterprising pharmaceutical journals will doubtless reprint them.

The influence of ferments upon drugs and drug action was one of the scientific features of the Congress. Dr. W. van Dam, of Hoorne, brought up the question of the identity of chymosine with pepsin. Dr. E. Fuld, of Berlin, presented a paper on the same subject, and both reached the conclusion that chymosine and

*Read before the Philadelphia Branch, Nov. 4, 1913.

pepsin are identical. A proposition was made for the nomination of an international committee to establish an international standard and method of testing pepsin.

Professor E. Perrot presented a paper on the presence of oxydases in vegetable drugs and their influences exerted on the quality of galenical preparations. He stated that enzymes are most active agents in the vital manifestations of living plants. Animal ferments, especially the ferments of animal secretions, were subjects treated by Professor Martin Jacoby, of Berlin, and Dr. E. Gorter, of Leyden. The presence of amylax, pepsin, and tripsin in the animal secretions were specially noted in Professor Jacoby's paper, while Dr. Gorter mentioned lipase, amylase, saccharase, maltase, and lactase with proteolytic and peptolytic ferments.

It will thus be seen that the scientific pharmaceutical world is giving much attention to the action of vegetable and animal enzymes. It is evident that in the future we must look forward to revelations which will greatly affect galenical pharmacy.

In urine analysis there were two papers on the oxalic acid in the organism and the presence in the urine of calcium oxalate. Dr. Viesser advanced the proposition that oxalic acid and oxalates are products of the decomposition of the carbohydrates, mainly sugar, and a statement was made that by giving up the use of sugar in the food oxalates in the urine are reduced. Starch food does not seem to produce an excess of oxalates. Professor Rosenthaler, of Strassburg, presented an interesting paper on pyro-analytical processes. He advocated the use of sublimation upon drugs and galenical preparations with a view of recognizing certain constituents. Of course this method is not practicable on all drugs, but he believes that in many drugs not heretofore analyzed in this way the process would be found valuable.

Physiological testing, particularly for digitalis and strophanthus, was discussed and it was plainly indicated that we are earnestly endeavoring to determine reliable and accurate means of testing drugs physiologically. The discussion concluded with the adoption of the following resolution:

"The second Section of the Eleventh International Congress of Pharmacy, having heard the report of MM. Ginzberg and Meulenhoff, expresses the opinion that the principle of determining the therapeutic value of certain drugs by physiological methods should be adopted whenever the chemical test does not give sufficient indications."

While the scientific work of the Congress was being considered, in sections held simultaneously commercial pharmacy was not neglected. As the official language for most of the sections was French and most of the members spoke in that language, it was evident to delegates from other nations that the French tongue was conducive to volubility and the encouragement of the use of other parts of the body, such as the arms, and the swaying of the body to convince hearers of the value of the speaker's arguments. It was noted that in many cases the speaker failed to address the Chairman, as is the custom in English-speaking countries. There did not seem to be any necessity for members indulging in physical effort and using their biceps to enforce their views, for the French are probably the most polite people in the world; but this habit of ad-

dressing each other is not conducive to the progress of business at any congress and leads to confusion.

It was noticed that in the discussions there was evidently an intention to register objections to continued legislation to control the dispensing of medicaments and to evade responsibility. The writer, notwithstanding his inability to speak French fluently, sought to impress upon the section the fact that individual responsibility should not be evaded, but that it was one of the greatest assets that the pharmacist had throughout the world. The public have trust and confidence in the pharmacist's judgment and ability and are willing to pay for this. If medicine can be handed down to a customer by an uneducated boy or girl, what is the necessity for a long pharmaceutical training with individual study and the possession of a diploma?

Pharmacopœial Revision occupied much time and thought during this Congress. The establishment of a Pharmacopœial Information Bureau produced much discussion. Professor Tschirch, of Berne, wrote a paper previous to the assembling of the Congress which was widely circulated and in which he proposed that such a Bureau be established. He offered his university at Berne, Switzerland, to aid in its organization and establishment. When the subject was brought before the Congress, it was evident that there was a division of opinion. Brussels was favored by the Belgians and French as the proper place for headquarters; The Hague was also advocated because the Federation Internationale Pharmaceutique was located at this geographical point, and further the Federation had taken active steps in advancing Pharmacopœial work. The objects of an International Bureau are most praiseworthy, the intention being to select a suitable chairman who is familiar with European languages and who will send out to the commissions and committees engaged in pharmacopœial revision a summarized statement of discoveries in tests and notices of adulteration and any information which would be valuable to the pharmacopœias of the world. This will involve some expense and the money needed to carry on such an information bureau must be subscribed for or raised in order to pay the necessary expense. The subject was discussed in section meetings, but because of its importance and the necessity to find the man, the general meeting of the Congress decided to appoint the following representative committee to take the whole subject into consideration:

"The Eleventh International Congress of Pharmacy desires to see continued the work towards the unification of Pharmacopœias so happily inaugurated by the Brussels Conference for the Unification of Heroic Medicines.

"1. Considering that an International Congress is not qualified to give a pronounced opinion as to the work to be done by a similar institution, the second Section asks the general meeting to appoint a commission, to submit within two months an organization scheme to an International Pharmacopœial Bureau.

"2. The scheme elaborated by this Commission will be transmitted to the office of the International Pharmaceutical Federation, which within a month will communicate it for examination to the official Commissions of the Pharmacopœias of the different countries.

"3. The Commission to consist of the following members: Professor A. Tschirch, Vice-president for the Commission of the Swiss Pharmacopœia; Professor E. Bourquelot, member of the Commission for the French Codex; Professor H. Thoms, Berlin; Professor Jorissen, member of the Commission for the Belgian Pharmacopœia; Professor H. G. Greenish, London; Professor Joseph

P. Remington, Philadelphia, Chairman of the Committee of Revision of the United States Pharmacopœia; Professor L. van Itallie, President of the Commission for The Netherlands Pharmacopœia, and President of the International Pharmaceutical Federation."

Among the other propositions with regard to pharmacopœias was one to use Esperanto for Pharmacopœial Nomenclature throughout the world. A lively discussion ensued after the presentation by the author of the paper, M. C. Rousseau, of France. The prevailing opinion seemed to be that while it was very desirable to have an auxiliary Esperanto name, that this language had not progressed sufficiently to warrant its adoption at this time. The proposition was referred to the Federation for action.

An exhibition which was most instructive was held at the Kurhaus, Scheveningen. It was confined solely to pharmaceutical education and scientific apparatus, no proprietary specialties were shown. Photographs of pharmaceutical colleges and schools of Europe, books, and pamphlets were in evidence, and one could have spent hours at the exhibition with much benefit. Historical objects were also shown. Photographic groups of students of various European schools showed clearly that women were taking up pharmacy. The Chemist and Druggist reporter noted this fact in the following language:

"The Bureau was staffed largely by women pharmacists, the languages they spoke being indicated by tiny national flags pinned beneath the broach. The feminist movement in pharmacy in Holland is not a thing of yesterday, but has been working for quite forty years. Most of the pharmacies have women assistants and their intelligence and industry have won for them golden opinions as to the suitability of pharmacy as an employment for women."

Professor P. van der Wielen, of Amsterdam, organized a corps of women assistants who were present at all of the meetings and upon excursions. One of the delegates was informed that they were all desirous of improving their knowledge of English and hence a conversation in English ensued. That the English speaking members appreciated this desire for education goes without saying.

There were only two delegates from the United States present. President Day appointed Joseph P. Remington and Julius A. Koch to attend the Congress and on every occasion they were treated with great hospitality and were accorded every attention by President Professor Dr. L. van Itallie and General Secretary J. J. Hofman.

The entertainments were all of a most lavish and hospitable character. A pleasing fact was the cordial greeting of President Edmund White, of the Pharmaceutical Society of Great Britain to the Americans, and the two English-speaking countries were in accord on all important subjects.

On our way back to America, Professor Koch and the writer were present at the opening meeting of the School of the Pharmaceutical Society of Great Britain in London, where we assisted at the presentation of the Hanbury gold medal to Dr. Frederick A. Power, a graduate of the Philadelphia College of Pharmacy of the class of 1874.

The delegates from the American Pharmaceutical Association performed their duties in a manner which they hope is acceptable to the members of the American Pharmaceutical Association.

Contributed and Selected

THE RAPIDITY OF ELIMINATION OR DESTRUCTION OF STROPHANTHUS AND DIGITALIS GLUCOSIDES BY GUINEA PIGS.

CHAS. C. HASKELL, A. B., M. D.

In the summer of 1911, experiments were performed in our laboratory to determine whether ouabain showed any tendency to manifest the so-called "cumulative" action on guinea pigs. With this end in view, the minimum lethal dose of ouabain in 25 percent alcohol was determined and four pigs were given barely sub-lethal doses. These same animals were injected with varying amount of ouabain on subsequent days, after the lapse of about 24 to 48 hours. The following protocol illustrates the results secured in all instances.

Experiment I. M. L. D. Ouabain 0.00000028—0.00000030 gm. per gm. weight.

9/9/11—Black male pig, wt. 260 gm.: 0.00000029 gm. ouabain at 10:57 a. m. Almost died.
9/12/11—Wt. 264 gm.: 0.0000002 gm. ouabain at 3:24 p. m.
9/13/11—Wt. 242 gm.: 0.0000002 gm. ouabain at 10:57 a. m.
9/14/11—Wt. 246 gm.: 0.0000002 gm. ouabain at 4:20 p. m.
9/15/11—Wt. 250 gm.: 0.0000002 gm. ouabain at 4:20 p. m.
9/16/11—Wt. 247 gm.: 0.00000027 gm. ouabain at 11:27 a. m.
9/18/11—Wt. 256 gm.: 0.00000028 gm. ouabain at 3:58 p. m.
9/19/11—Wt. 258 gm.: 0.00000028 gm. ouabain at 5:02 p. m.
Experiment discontinued.

It is apparent from these results that ouabain is rapidly destroyed or excreted by the guinea pig and that when twenty-four hours have elapsed a guinea pig that has previously received a large dose of ouabain is no more susceptible than is an animal that has previously received none. If, however, the second injection is made in considerable less than 24 hours after the first, the animal succumbs. This may be seen from the following experiments:

EXPERIMENT II.

Male pig. Wt. 416 gm.
9/9/11—2:33 p. m.: 0.00000028 gm. ouabain.
5:03 p. m.: 0.00000010 gm. ouabain.
Died during night.

EXPERIMENT III.

Male pig. Wt. 613 gm.
9/9/11—2:37 p. m.: 0.00000015 gm. ouabain.
5:07 p. m.: 0.00000026 gm. ouabain.
Died during night.

The question then arose, do the animals acquire a greater degree of resistance as a result of these sub-lethal doses? That this is not the case is shown by the following protocol:

EXPERIMENT IV.

Male pig. Wt. 439 gm.
9/11/11—10:34 a. m.: 0.00000028 gm. ouabain.
9/12/11— 3:23 p. m.: 0.00000020 gm. ouabain.
9/13/11—10:59 a. m.: 0.00000028 gm. ouabain.
4:20 p. m.: Found dead.

These results are in full accordance with the experience of Vanderkleed and Pittenger.

In June, 1912, Hatcher read his excellent and comprehensive paper on "The Persistence of Action of the Digitalins," and reported that the action of ouabain showed little tendency to persist when tested on cats, but that digitalis did show such persistence. He found that some cats, after a larger, sub-lethal dose of digitalis, showed diminished resistance for as long as a month. Experiments upon rabbits showed that these animals are not rendered more susceptible to digitalis by sub-lethal doses when several hours elapse before the second injection.

In view of these results of Hatcher's, it seemed advisable to determine the behavior of guinea pigs toward digitalis; consequently, experiments similar to those already carried out with ouabain have been performed, digitalis preparations being used for the first injection, while ouabain or digitalis was used for the second injection. The results may be tabulated as follows:

Interval between Injections.	Percent of First Inj.	Aver. M. L. D. Second Inj.	Results.
1 day	36	80	Survived
1 day	55	80	Survived
2 days	74	74	Survived
2 days	92	37	Survived
3 days	57	86	Survived, almost died
3 days	86	57	Survived, very sick
1 day	86	74	Died (two hours)
3 days	84	89	Died (33 minutes)
3 days	84	50	Survived
4 days	75	75	Died (two hours and 24 minutes)
4 days	45	75	Died (lived more than six hours)
4 days	50	75	Died (lived more than two hours)
7 days	90	75	Died (lived more than two hours)
7 days	91	75	Died (2½ hours)
10 days	60	67	Died (45 minutes)
11 days	90	89*	Died (40 minutes)
11 days	75	89*	Died (45 minutes)
15 days	95	75	Survived

*Three fresh pigs injected with this same dose all survived.

No guinea pig was used for a second injection until its general condition seemed normal. In a number of instances, the weight showed a decided increase between injections, but the site of the former injection was always marked by induration or an open slough.

In a recent paper, Vanderkleed and Pittenger call attention to the fact that erroneous statements have been made concerning the cost of guinea pigs for an assay of a heart tonic by Reed's method. They state that the cost should be based, not upon the total number of animals employed, but upon the number that succumbs, for it is possible to use an animal time after time until it finally succumbs.

From the results secured in our experiments, it seems that digitalis glucosides are comparatively rapidly eliminated or destroyed by guinea pigs in some instances, while in others a state of increased susceptibility is induced by large sub-lethal doses of digitalis which persists for at least eleven days and has no connection with the animal's general condition.

Therefore, the conclusion seems justified that as test animals, the use of guinea pigs which have already received an injection of digitalis is unsafe until the length of time required for complete recovery can be definitely decided. It has been my own impression (unsupported by any experimental evidence) that even after a month has elapsed, unsatisfactory results may be secured, and it has been our invariable custom to use fresh animals in the final assay of any preparation.

If uniformly satisfactory results may be obtained after a month has elapsed, it is obvious that the second use of such animals as recovered will be nearly as costly as purchasing fresh pigs, because the food and care, added to loss from natural causes, will amount to a considerable sum.

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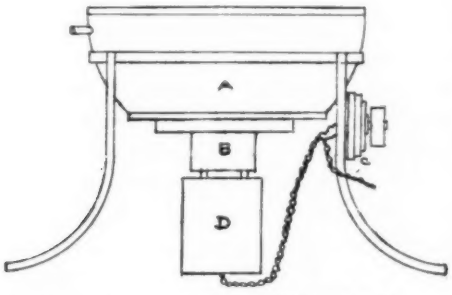
DEPARTMENT OF EXPERIMENTAL MEDICINE, ELI LILLY & Co., August, 1913.

CONVENIENT ELECTRICAL WATER BATH.

JOHN W. FORBING, CREIGHTON UNIVERSITY.

An electrical steam bath filling the demand for convenience and safety, in laboratories lacking live steam and employing inflammable liquids, may be easily constructed: A 500 ampere General Electric heating unit, round and flat, is soldered into the bottom of the ordinary copper constant level water bath. The unit is connected with an attachment plug screwed into one of the legs of a tripod which may be used to support the bath. Cord and hubble attachment plug enables the user to move the bath to suit convenience. As used by the author on a 110 volt, 60 cycle alternating current, 475 watts are consumed. But three minutes are required to bring contents of bath to ebullition.



A, Water bath. D, Attachment plug.
B, Electric unit. C, Snap switch.

FORMATION AND DISTRIBUTION OF ODOROUS PRODUCTS IN PLANTS.*

PROFESSOR EUGENE CHARABOT, SC. D., PARIS, FRANCE.

Professor E. Charabot, Sc. D., of the Sorbonne of Paris, was presented to the large audience by Professor Samuel P. Sadtler, who in his introduction stated that the speaker by virtue of his numerous and monumental labors and contribu-

*Report of a lecture delivered before the Philadelphia College of Pharmacy, Oct. 17, 1913, and reported in English by Prof. I. V. S. Stanislaus.

tions to science, and especially his excellent work on Volatile Oils and odorous principles, is one of the world's recognized authorities.

Professor Charabot spoke in French. His eloquence held the audience for over an hour following his every word. In addressing his hearers he stated that he was proud to speak from the rostrum of America's oldest College of Pharmacy, and that he was well acquainted with the work of America's investigators of odorous bodies, to mention only Professors F. B. Powers, a graduate of this college, Edward Kremers, I. V. S. Stanislaus, Henry Kraemer, whose book on Botany is always on his desk, regretting not to have met Doctors Pancoast and Pearson, the other Philadelphians contributing to the chemistry of Volatile Oils. He wanted also to pay his deep respects to the chairman of the Pharmacopœial Committee, Professor Joseph P. Remington, and last but not least, to the Chairman of the evening, Professor Sadtler, whose many labors were well known to him.

Proceeding, Professor Charbot spoke as follows:

Among the innumerable substances elaborated in the plant organism, there are some whose physiological role is so manifestly predominant, that their study is right at the outset forced upon the attention of chemists and physiologists.

The mechanisms which govern the changes and migrations of the carbohydrates, the cooperation of these principles in the fundamental phenomena of plant life, are known in all their ramifications. And then, moreover, even though one is unacquainted with the chemical constitution of the albuminoid substances, their physiological role as well as their actions in the functions of life, have been very carefully studied, if not accurately determined.

But in addition to these bodies of foremost interest, the carbohydrates, albuminoids, and the fatty substances, there is a multitude of others whose role seems to be more in the background, but which, nevertheless, though their normal and constant presence prevents this from being suspected, should have a very well-defined significance, and perhaps even participate in an essential function. The odorous compounds are among these. Their appearance, their distribution, their evolution, their physiological role, deserve, for this reason, an impulse of scientific curiosity. This is the more so, as the perfume principles of plants adapt themselves in the most perfect way, (thanks to the precision of the methods of handling, which are suitable to them) to the study of plant chemistry in some of its relations to the action of animate matter. These considerations, of a purely philosophical order, should be in some measure sufficient to show that the question which I am going to have the honor of expounding deserves to take a place in the plan of our physiological knowledge.

Some other considerations and these are of an immediately practical kind, make of my subject a particularly interesting question. The cultivation of plants for perfume, supplies one of the most important of French industries; an industry which finds the most extraordinarily favorable conditions for plant vitality on that beautiful and smiling coast, known throughout the world under the name of "de Cote d' Azure"—(The Azure Coast).

So the subject whose concise explanation you have been pleased to honor me in asking me to present, appears to us of interest, both speculative, and at the same time, practical.

The study of the mechanisms which regulate the formation of the odorous matters and their evolution, the investigation of the relations existing between the chemical phenomena which modify these substances and the immediate manifestations of the life of the plant, the knowledge of the part played by the essential oils in the vital economy, constitute so many enticing problems which, it will be readily conceived, have a capital importance, not only from the point of view of rational cultivation and of judicious harvesting, but also from the point of view of the rational extraction of the perfume of the plant.

To this study I have devoted, either alone or in collaboration, principally with Mr. Al. Hebert, more than ten years of research work.

The question embraces: the formation and circulation of the odorous compounds; their evolution and the mechanism of this evolution; the genesis of the odorous matters and the physiological role of the perfumes.

Formation and Circulation of the Odorous Compounds.—The odoriferous plants form two very distinct groups as regards the distribution of their aromatic principles among the various organs. In some the essential oil makes its appearance in the green organs; in the others it exists exclusively in the flowers. Thus it will be necessary to consider separately the perfume in the entire plant and the perfume in the isolated flower.

The Perfume in the Entire Plant.—We have experimented with various representatives of the vegetable kingdom, belonging to different families and containing the most diversified chemical substances, and we have arrived at the following conclusions:

The odorous kinds of matter make their appearance in the young, green organs. They continue to form and accumulate until the following period, but with an activity which slackens more or less appreciably. They migrate from the leaf into the stem, and thence into the inflorescence, obeying the laws of diffusion: a portion enters into solution and, by osmosis, penetrates into the stem. On arriving in a medium already saturated with similar products, a portion is precipitated, whilst the rest, consisting of a relatively soluble mixture, continues to diffuse through the membranes and reaches the organs of consumption particularly the inflorescences.

At the time when the work of fertilization is accomplished, a certain quantity of essential oil is consumed in the inflorescence. It is possible and even probable that the green organs produce at the same time further quantities of odorous matters; experiment only permits of the determination of the fact that the difference between the production and consumption is expressed by a loss at the period when the functions of the flower are accomplished.

The practical consequence of this last conclusion is that the harvesting of the perfume-yielding plants should be effected shortly before this consumption takes place, that is, before the act of fertilization.

When this act has been accomplished, the odorous principles appear to descend again into the stem and, generally, into the organs other than the flower, a migration which is probably induced by the desiccation of the inflorescences, which involves, other things being equal, an increase in the osmotic pressure and a partial precipitation in situ of the least soluble principles.

The Perfume in the Isolated Flower.—There exist, as was supposed by J. Passy and as was proved by A. Hesse and his collaborators, two categories of plants: one class, continuing to produce odorous matters when placed under conditions such that the vital functions may still be exercised; the other class, containing the whole of their odorous principles in the free state and incapable henceforth of producing any further quantity, even though their vitality be not arrested.

Evolution of the Odorous Compounds and Its Mechanism.—These researches, which I have carried out partly in collaboration with Mr. A. Hebert, have led to the following conclusions: The compound ethers (esters) have their origin, in particularly active fashion, in the green portion of the plants, by the direct action of the acids on the alcohols previously formed. This phenomenon of esterification is assisted by a special agent playing the part of a dehydrating agent, probably an enzyme of reversible activity.

The influences which are capable of modifying the plants so as to adapt them for a more intense chlorophyllian function are favorable at the same time to esterification, because this function is favorable to the mechanical elimination of water.

Thus the chlorophyllian function tends to acquire a new significance: It not only assures the fixation by the plant tissues of carbonic acid gas, it not only effects, by favoring transpiration, the circulation of the liquids which carry and distribute the principles necessary to the mineral nutrition of the plant, but it also activates, once the carbon is assimilated, the condensations which enable the passage from a simple chemical structure to one of the innumerable complex structures, the study of which taxes all the ingenuity of the chemists.

When the alcohol is capable of readily parting with the elements of water, it gives rise, together with the compound ethers (esters) to the corresponding hydrocarbon, so that the first transformation which the alcohols undergo are due to phenomena of dehydration.

The phenomena of isomerisation, that is, changes of nature without change of composition, also proceed together with the matamorphosis of the odorous matter. Lastly the alcohols and their ethers are actively converted into their oxidation derivatives, particularly when the inflorescences appear, in which organs the fixation of oxygen by the tissues is particularly intense.

Genesis of the Odorous Matters.—The sum of my researches, and the interesting observations of M. Hesse lead to a conception of the genesis of the odorous matters in the plant. A large number of the odorous products, very diverse in their functions and chemical structure, are produced in consequence of the splitting up, with fixation of the elements of water, of principles called glucosides. It is sufficient to admit the general nature of such a mechanism to arrive at a satisfactory explanation of the facts observed with regard to the formation of the odorous matters and their appearance at any particular point of the vegetable organism.

It seems to me that there is reason to believe that the glucoside which is capable of yielding the essential oil is formed or tends to be formed in the green portions. Most frequently, this glucoside immediately encounters the conditions of environment which are favorable to its decomposition, and then the essential oil appears in the green portions and begins to circulate, evolve itself and play its part. It may even happen that the medium is so favorable to the splitting up of the gluco-

side, that the latter can never be formed; in this case the whole of the essential oil will exist in the free state in the green organs.

In other cases, the glucoside only comes in contact with the ferment which is capable of splitting it, in the flower. It will then only be after it has circulated as far as the flower, undergoing in its course more or less profound modifications, that it will be able to liberate the constituents of the essential oil, and the flower alone will be odorous. It is not impossible that, in certain flowers, the medium may be so favorable to the splitting up of the glucoside, that the latter is completely split up as soon as it arrives there. The formation of further quantities of essential oil in certain flowers in proportion as the essential oil already formed is removed, would be explained by a phenomenon of chemical equilibrium. The following reaction:

Glucoside + Water = Glucose + Essential Oil

would be restricted by the reverse reaction, and a state of equilibrium would be reached when the glucose and the essential oil would amount to a certain proportion. Thus the flowers in question, if left to themselves, would retain a quantity of perfume which would not increase. On the other hand, if the essential oil be removed as fast as it is formed, the decomposition of the glucoside would no longer be limited, and it would continue to take place. Consequently, the appearance of a fresh quantity of perfume in the plant whose life is prolonged whilst the odorous matter is continuously removed, follows as the result of a phenomenon of chemical equilibrium in the vegetable cell. The type reactions will serve as an explanation of the changes:

$R.OH>R.CHO>R.COOH.+(H_2O)n.$

$R.OH+R.COOH>R.COOR.+(H_2O)n.$

$R.CHOH>R.CO.R+(H_2O)n$—accounting for the formation of alcohols and phenols, and their aldehyds, acids, esters and ketones, etc.

It will be understood, without it being necessary to insist on it, what advantage we have been able to derive from the practical standpoint as regards the value and the yield of perfume, from all these results obtained by scientific research.

Physiological Role of the Odorous Matter.—In collaboration with Mr. Hebert, I have proved that, contrary to what was previously believed, the odorous kinds of matter are not waste products of which the plant cannot make use. They are capable of being utilized by the plant, particularly when the latter is protected from light and no longer assimilates the carbonic acid of the air with the same intensity. They participate normally in the work of fertilization and of the formation of the seeds, in the course of which they are partially consumed."

At the conclusion of the lecture Professor Sadtler announced that Professor Stanislaus had kindly consented to render the lecture into English for the benefit of the American public.

The entire audience including Professors Lowe, Sadtler, Kraemer, Mr. Otto Kraus an others were loud in their praises of the excellence of the lecture.

PHYTOCHEMICAL NOTES.

79. *Oleoresin of Pseudotsuga taxifolia (Lam.) Britton.*

O. A. BEATH.

Acting upon the request of Acting Director Howard F. Weiss, of the Forest Products Laboratory, Assistant Forest Ranger F. W. Stablman, of the Santian National Forest, stationed at Detroit, Oregon, collected oleoresin, also twigs and cones of the "Douglas Fir." The identity of the latter was confirmed by Professor R. H. Denniston, of the Botany Department of the University. The tree is also known to botanists by the synonyms, *Pseudotsuga mucronata* (Raf.) Sudw. and *Pseudotsuga Douglasii* (Lindl.) Carr., and is commonly known as Douglas fir, red fir and Douglas spruce.[1] As a possible source of the Oregon balsam, the Douglas fir and its oleoresin are of special interest to the phytochemist as well as to the pharmaceutical and analytical chemist. As was learned after this examination had been made, the oleoresin in question had been obtained, not by puncturing the pustules but by boring into the trunk.

Setting aside about 100 grams as reserve material and as specimen, the remaining oleoresin, about 336 grams, was subjected to steam distillation, thus resolving it into its volatile oil and resin. These, together with the original oleoresin, were examined as to their physical and chemical constants. The amount of material was too small for anything more than a preliminary survey.

The oleoresin when received was not clear like that obtained from *Abies amabilis* which was examined in 1904 and 1905, respectively, by Rabak,[2] but had more of the emulsion-like appearance of ordinary turpentines, though decidedly liquid like the balsams. However, attempts to separate water by dissolving the oleoresin in chloroform or by distilling with xylene gave negative results. After standing for several months, however, it became perfectly clear, a slight white sediment having been deposited.

Frankforter states that "Fir pitch as it runs from the trees is a perfectly clear liquid. * * * Usually it is water-white and quite mobile. On exposure to the air it changes its color and slowly becomes viscous."[3]

The angle of rotation of a 20 percent alcoholic solution was determined in both a 100 mm. and in 200 mm. tube and in each case the specific angle of rotation was computed to be $+1.48°$.

One gram of oleoresin, dissolved in 10 cc. of perfectly neutral alcohol and titrated with standardized alcoholic potassa, gave an acid value of 100.5. Heated for an hour on a water bath with an excess of alcoholic potassa, and titrated back, the saponification number was found to be 102.0. Duplicate determinations were made in both cases.

Of volatile oil, 51.5 grams or about 15 percent were obtained. Its specific

[1] A detailed synonomy, quoted from Sargent's Sylva, will be found in Brandel and Sweet's article in the Ph. Rev., 26, p. 326. See also Rabak, Ph. Rev., 22, p 290

[2] Ph. Rev., 22, p. 293; also 23, p. 46.

gravity at 15° was 0.8705; its angle of rotation in a 100 mm. tube —40.46°, hence $[\alpha]_D = -46.47°$.

When freshly distilled the oil had an agreeable terebinthinate, slightly camphoraceous odor. Five cc. yielded about 0.2 grams of a nitrosochloride, presumably pinene nitrosochloride. The small yield is in conformity with the high angle of rotation.

The resin obtained upon steam distillation became hard upon standing. It was clear but by no means of the light yellow color like that obtained from *Abies amabilis*.[3]

To determine the angle of rotation, the resin was purified by evaporating the filtered chloroform solution. In a 20 percent alcoholic solution (d=0.845) it deviated the angle of polarized light 3.34° to the right, hence $[\alpha]_D = +19.6°$.

The acid value of the resin was found to be 129, the sponification value 141. Duplicate determinations were made in both cases. The discrepancy between the two values as determined for the oleoresin and the resin, respectively, cannot be explained at present.

There are on record at least two earlier preliminary examinations of the volatile oil of the Douglas fir, the first by Blasdale[4] in 1901, the other by Frankforter[5] in 1906. The needle oil was examined by Brandel and Sweet[6] in 1908.

The tabulation of a few of the data recorded may enable a better comparison.

	Blasdale.	Frankforter.	Beath.
Yield of oil.....	about 9 p.c.	22 p.c.	15 p.c.
Sp. gr.	0.8583 at 15°	0.8621 at 20°	0.8705 at 15°
Index of refraction.....	1.4754 at 15°	1.47299	.....
Specific rotation $[\alpha]_D$.....	—41° 12′	—47.2°	—46.47°

The variations in the physical constants as recorded are such as might be expected from an oil of the same species, although differences in the specific gravity are rather large. The variation in the yield, however, is more remarkable.

Since the Douglas fir has oleoresin-bearing pustules under the bark, the oleoresin from this species has been suggested as a possible source for the Oregon balsam of commerce. Its chemical examination, therefore, is of commercial as well as of phytochemical interest. Hence a further comparison of the properties of this oleoresin with those of the oleoresin of *Abies amabilis*, another possible source of Oregon balsam, should give an added interest to the subject. For this purpose the data compiled by Rabak in the publication referred to above are utilized. Attention should, however, be once more directed to the fact that after this examination had been made it was learned that the oleoresin in question had not been obtained from the pustules but by boring into the trunk. If this method yields an oleoresin similar in appearance to Canada balsam, it becomes apparent why the Oregon balsam of commerce should be much cheaper than Canada balsam. Hence the comparison of data in the following table loses

[3] Comp. 1, c.

[4] Journ. Am. Chem. Soc., 23, p. 162.

[5] Ibidem, 28, p. 1467.

[6] Ph. Rev., 26, p. 326.

none of its analytical significance and interest, though phytochemically the products are not directly comparable.

OLEORESIN.

	Pseudotsuga taxifolia	Abies amabilis	Oregon balsam, commercial "1903"	"1904"	"Portland"	"Dowzard"
Sp. Gr.....	.....	0.969	1.01	0.985	0.988	0.993
[α]D	+1.48°	±0°	+4° 13′	+2° 13′	+3° 5′	—3° 12′
Acid No.....	100	44	116	103	114	.....

VOLATILE OIL.

	Pseudotsuga taxifolia	Abies amabilis	Oregon balsam, commercial "1903"	"1904"	"Portland"	"Dowzard"
Yield	15 p.c.	40 p.c.	.....	25 p.c.	.....	.....
Sp. Gr.....	0.8705	0.852	0.857	0.882	.....	0.8652
[α]D	—46.47°	—12.17°	—37° 46′	—34° 37′	.....	—37° 24′

RESIN.

	Pseudotsuga taxifolia	Abies amabilis	Oregon balsam, commercial "1903"	"1904"	"Portland"	"Dowzard"
[α]D	+19.6°	±0°	.....	.....	.....	.....
Acid No.....	129	70	.....	.....	.....	153

A comparison of the above data justifies the conclusion that we are not much nearer to an understanding as to the botanical source of commercial Oregon balsam than before, except possibly in so far that one more botanical possibility seems to have been eliminated. In addition to the constants tabulated above, it should be pointed out that whereas the oleoresin of *Abies amabilis* examined closely resembled the commercial oleoresin in color and general appearance, the oleoresin from Pseudotsuga taxifolia was milky in appearance and in this condition could scarcely have been substituted for either Oregon or Canada balsam. However, upon prolonged standing it became clear but "water-white," not yellow as the Canada and Oregon balsams of commerce.

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Blasdale, W. C. 1901
On heptane from coniferous trees.
Jour. Amer. Chem. Soc., 23, p. 162.

The author found the oleoresin of *Pseudotsuga taxifolia* to yield an oil of the following nature:

Specific gravity at 15°	0.8583
Index of refraction at 15°	1.4754
Specific rotation	—41° 12′
Iodine absorption	"high"
Yield of oil	about 9 p.c.

Frankforter, G. B. 1906
The pitch and the terpenes of the Norway pine and the Douglas fir.
Jour. Amer. Chem. Soc., 28, p. 1467.

The author reviews the yield of fir "pitch" from different grades of wood and outlines the physical and chemical constants of the oleoresin and volatile oil.

Oleoresin (exudation) of Douglas fir:

Specific gravity at —20°	0.9821
Index of refraction at 20°	1.51745
Optical activity	—8.82

Volatile oil of Douglas fir:

	Steam Distilled.	Destructive Distilled
Specific gravity at 20°	0.8621	0.8662
Boiling point	153.5—154°	157—160°
Index of refraction	1.47299	1.47246
Optical activity	—47.2°	—29.40°
Yield of "turpentine in fir pitch"	22 p.c.	.....

FROM THE LABORATORY OF EDWARD KREMERS, Madison, Wisconsin.

PHYTOCHEMICAL NOTES.

80. A Crystalline Resin Acid From Pinus Sabiniana.

O. A. BEATH.

The oleoresin of Digger's pine has heretofore attracted the attention of the phytochemist because of its heptane content. If the exploiters for naval supplies in California at the time of the civil war were disappointed in finding that the so-called gum yielded no turpentine, exploiters for rosin may have been equally disappointed in finding that the oleoresin from this species, when distilled, yielded a sticky and unsightly resin or rosin. If, however, either resin or oleoresin be subjected to distillation under diminished pressure, a transparent, hard and amber-colored resin is obtained. So far as appearance is concerned this resin can readily compete with the first grades of rosin on the market.

As already indicated, the oleoresin can be used as well as the resin obtained by steam distillation of the oleoresin. Inasmuch as the resin contained chips, etc., admixtures introduced during the collecting of the oleoresin, the resin was dissolved in alcohol and the solution filtered. The resin obtained after the evaporation of the solvent was clear and hard. The oleoresin which was used in another experiment was not purified but distilled as it came from the trees. The oleoresin used in these experiments was obtained through the co-operation of Mr. Garvey Cline, Director of the Forest Products Laboratory, at Madison, Wisc.

One hundred grams of material were used in each experiment. The distillation was carried on in an ordinary round-bottom distilling flask. The distillate began to come over at a temperature of about 220°. In the case of the resin the maximum temperature was reached at 240°, while the oleoresin could be distilled to 260°, without any decomposition. The pressure in both cases was kept fairly constant at 18-20 mm.

The distillate upon cooling became very hard in both cases. That obtained from the resin was taken up with acetone and allowed to evaporate slowly. In a few days crystals were observed in the mother liquor. The supernatant liquid was removed with the aid of alcohol and the crystals were collected on a force filter. Recrystallized from acetone, the resin acid from both sources was found to melt between 152°-155° C. Lack of time and the small amount of material thus far prepared have prevented an investigation of this crystalline resin acid for the present.

A word of comment concerning what some may regard as a rather queer behavior may not be out of place. Distillation of a resin or high molecular resin acid, even when conducted under diminished pressure, may be supposed to yield decomposition products rather than to change a semi-natural product that refuses to crystallize into one that will crystallize. Neither will the suggestion that fractional distillation under diminished pressure has improved the situation explain very much if one recalls the failure of attempted fractional crystallization. The explanation will have to be sought elsewhere.

The resin acids possibly find their closest analogues in organic chemistry in the so-called terpenes and related compounds. Now, it is well known to the

terpene chemist that in not a few instances the capacity for crystallization is much greater on the part of the optically inactive member of a group of optical isomers than on the part of the two optically active representatives of the same group.

In like manner the melting point of such inactive substance has frequently been found to be higher than the active components. In one instance, the writer, while working in Wallach's laboratory in Goettingen in 1889-1890, made use of these observations in the identification of an optically active substance of which but an exceedingly small amount was available. A few years later, it was observed in this laboratory that optically active resin acid from black pitch can be distilled under diminished pressure without other important change than loss of its optical activity.* Hence the distillation of the Digger's pine resin suggested itself with the results recorded above. The explanation proposed with regard to the capacity of crystallization may also throw light on the variation of the melting point observed in connection with some of the resin acids, e. g. abietic acid. A careful study of the optical activity and melting point of resin acids would therefore, seem very desirable.

The technique of resin research is not without its difficulties. Probably most of the work recorded in literature has been performed with amorphous material. Chemical literature may be overburdened but scarcely enriched by such contributions. To have been able, therefore, to cause the Digger's pine oleoresin to give up one of its constituents in crystalline form was a welcome result to one who for years had been watching solutions in various solvents with the hope that one of them might show a slight inclination to crystallize. In this particular instance the work undertaken during the past year was doubly fortunate in as much as it revealed a second method whereby a crystalline resin acid could be obtained from the Digger's pine. Again the success was due to a slight modification in the technique.

The precipitation of the resin acid as lead salt and its regeneration in the customary manner having failed to yield any crystalline products on a previous occasion, fractional precipitation was resorted to. But, as will be shown, even this precaution did not yield the desired results when the acid was regenerated according to the conventional methods.

A portion of resin from Digger's pine was dissolved in alcohol, filtered, and placed in a large wide mouthed bottle. Six fractional precipitates of the lead salt were made by adding alcoholic lead acetate. After the sixth addition of lead acetate and the removal of the corresponding precipitate no more lead salt was thrown down by the addition of lead acetate. The precipitates were thoroughly dried and the lead content of each determined as lead oxide.

	Percent as PbO	
	I	II
Precipitate No. I	4.90 p.c.	4.82 p.c.
Precipitate No. II	10.81 p.c.	10.74 p.c.
Precipitate No. III	14.55 p.c.	14.64 p.c.
Precipitate No. IV	18.45 p.c.	18.40 p.c.
Precipitate No. V	19.32 p.c.	19.28 p.c.
Precipitate No. VI	20.56 p.c.	20.51 p.c.

*Proc. Wisc. Ph. A., 13 (1892), p. 48.

The final filtrate from the lead acetate precipitates was treated as follows: additional fractional precipitates were obtained by adding aqueous lead subacetate until no further precipitate was formed. The mother liquor was set aside in a cool place and left for several weeks. Gradually a white crystalline solid was formed which deposited upon the sides of the bottle. Upon determination of the lead as oxide in the compound so formed it was found to be 53.3 p. c. PbO. This is approximately the same as the theoretical percentage of lead oxide corresponding to the lead abietate, $(C_{20}H_{27}O_2)_2$ PbO.

The lead salt obtained from the sixth precipitation with alcoholic lead acetate was used to secure a resin acid.

1. 100 grams of the lead precipitate were treated with twice the amount of sulphuric acid as ethyl sulphate necessary to precipitate the lead in the sample. The mixture was stirred and allowed to stand over night. The solution was filtered from the precipitate of lead sulphate. The filtrate upon standing did not yield any crystals, but dried to an amorphous mass.

2. An attempt to regenerate the acid by precipitating the lead as sulphide from the alcoholic mixture likewise gave only amorphous products.

3. Another 100 grams of lead precipitate were treated with a hydrochloric acid solution of alcohol. An equivalent quantity of this solution was added to the lead salt. The precipitate was filtered off and the filtrate was set aside and allowed to evaporate slowly. After about two weeks crystals were observed in the mother liquor. The syrupy liquid surrounding the crystals was removed by washing with a mixture of acetic acid and acetone. The resin acid was then purified by recrystallization from pure acetone.

The melting point was found to be between 145-150°C, after the third crystallization.

Several solvents were used for the purification of the resin acids, viz.: acetone, amyl alcohol, ethyl alcohol, methyl alcohol, ether, chloroform, ethyl acetate and acetic acid. All but the acetone proved to be unsatisfactory for the separation of the mother liquor from the resin acid.

In this case also the amount of crystalline material obtained thus far was small. Neither did the time permit of a more careful investigation at present. Hence even the question as to the identity of the two crystalline acids obtained by different methods from the same material remains unanswered. The same source, also the proximity of the melting points would seem to indicate identity. If what has been said in commenting on the fractional distillation method be borne in mind, the somewhat higher melting point of the acid obtained by the first method will be readily understood.

FROM THE LABORATORY OF EDWARD KREMERS, Madison, Wis.

THE PRACTICE OF MEDICINE IN CHINA.

J. F. RUPERT, HOSPITAL CORPS, U. S. N.

The native practitioner has learned his business by the apprentice system, mainly by his wits. Systematic education does not necessarily enter into his equipment, although the most successful may be possessed of more than the average learning. Others are the more successful for their very ignorance, as ignorance and superstition are their main stock in trade. If the practitioner belongs to the better class he will have an array of Chinese books in his office and an extensive stock of drugs, with many servants about to minister to his every wish or desire.

The richer will travel in a fine carriage, while the less favored will be satisfied with the ever available rickshaw. In the line of medicine, both internal and external, he will attempt anything, and while he may not understand the properties of his remedies, from experience he may have gained a little practical information. Chinese physicians have existed who actually used drugs scientifically, understanding their properties and watching their effects after administration. But the most of the present native physicians have learned empirically that certain drugs are good for certain ailments, and the theory of medicine is the least of their studies. That many Chinese doctors have a reputation is proved by the price charged for their visits, which in some instances in Shanghai is $30.00 per visit. The foreign practitioner asks $15.00 per visit (local currency).

Chinese literature contains many works on medicine and materia medica, but the best of these were written years ago and cannot be read at present except by specialists, especially foreigners who have made a special study of these old characters. Old Chinese inscriptions on rocks and statuary and porcelain and the very oldest characters are unintelligible to the present Chinese scholar.

The foreign practitioner, especially the missionary medical man, is only slowly gaining the confidence of the natives, and I would judge that the triumphs of surgery have more to do with the improvement in this matter than practice of medicine.

Chinese officials and the higher classes as a rule call in the native doctor, but often appear at hospitals for surgical treatment.

The surgery of the native doctor may be considered an absent quantity. Abscesses may be opened with their crude knives, and will be treated without any regard for asepsis or antisepsis. Ointments, blisters and poultices seem to be the limit of their treatment.

The Chinese like medicine. Pills are used most in general practice, and probably decoctions and infusions take second place. Pills are supposed to possess all or any virtue possible to be imagined and this confidence in medicine and its prescriber has much to do with the cure in most instances.

Diseases of women rarely come under the attention of the native doctor, and infectious diseases are not at all understood and can therefore be treated with no chance for success. Obstetrical work is all handled by midwives, and it may

be supposed that these also attempt advising women about their special ailments. Chinese women will readily relate all their symptoms to male doctors, but absolutely refuse to undergo examination. However, women doctors can very readily secure an examination, and also do much obstetrical work, especially at the hospitals for women.

Some of these native doctors also attempt dentistry, but the most of this work is done by native dentists with the shops along the streets, who extract teeth by tying a small strong cord about the tooth, or extract it with crude home-made forceps. These men have their little benches at certain places in the native cities or side streets of the foreign concesssions, and year after year continue to do business exposed to wind and weather. That they do business is testified to in the affirmative by the great number of dirty, decayed teeth exhibited.

Vaccination according to modern methods must be taken as a great advance with the native medical man. Vaccination from arm to arm is quite general in the more enlightened districts, but the old process of inoculation, consisting of inoculating children through the nostril with powdered scabs is being slowly discarded.

Vaccination from arm to arm has been introduced since the Tai'ping rebellion, which occurred during our rebellion but lasted about twenty years. However, this work hardly comes within the scope of the Chinese doctor. The priests at the temples have monopolized this work largely, while the people themselves in their own households, or some financially minded individuals traveling with a vaccinated child will vaccinate people in wholesale lots at a most trivial price.

During the winter months, beginning about October, the priests have arranged for inoculation by having a supply of powdered scabs on hand at the temples, and at a cost of a few coppers or less will inoculate children, to be taken home and die in many instances. Of course, if the child lives, as is proved to occur frequently by the many pitted faces seen in China, the chances are very good that it will never again have the disease.

The native doctor would rather be called upon by the people for advice than to make visits. The sick may even be dragged to his home for treatment, to save expense. The Chinese are ingenious in arranging stretchers for the transportation of sick and wounded, and especially in the summer time one cannot travel far in the native cities where the missionaries have established hospitals without seeing sick being carried from place to place.

While the missionaries have been abused and maligned by many people ignorant of the facts, or prejudiced against Christianity, yet in China we see the promising results of missionary endeavor. If the missionaries did nothing more than the magnificent work, now well under way, of educating young Chinamen in modern medicine and surgery, overlooking even the work done by the missionary doctors themselves in the cure of disease and alleviation of pain and distress, the results would well repay any effort or cost expended. One is most certainly struck with a consciousness of the power of the missionary effort when he witnesses a young Chinaman, probably under twenty-five years of age, performing amputations, removing tumors and intelligently prescribing the medicines of civilization for the cure of disease. Schools have been established at many cities

in China, and Chinese graduates are being turned out each year after a five or seven-year course in modern medicine and surgery. This instruction requires a good preliminary high school education which is given in the missionary schools and universities.

At the present time I should judge that not fewer than thirty-five Chinese doctors graduate each year, and this number will rapidly increase with the extension and popularizing of the school work. These men assist the missionary physicians, take contracts with the Chinese Government in the Army or Navy, or take charge of the Provincial Hospitals which are being established by the Province Governors, which has been rendered practicable by the supplying of these Chinese physicians. Others establish dispensaries where the people can receive treatment for disease and injuries or where they can purchase good medicines of established and recognized virtue with intelligent directions.

During the outbreaks of cholera, the native men have recommended chewing copper cash pieces (coin worth about 1-20 cent gold) and I have been told the poor dying devils can be seen chewing copper until death overtakes them with broken teeth and bleeding mouth.

The popular idea that Chinese eat rats, which is false, is probably based on the fact that they use the internal organs of the rat in treatment. Various organs are supposed to possess special virtues in the cure of disease of the corresponding organs in man.

Needling is largely practiced. Inserting a long needle into the abdomen or side without any regard for asepsis whatever and with no knowledge of what organs are being pierced can be only expected to result in the death of the unfortunate upon whom the ignorance is practiced.

Plasters are used for all sorts of abrasions and skin eruptions. Whatever the property of their plaster they do possess the one virtue of sticking. As to the remedies employed I am not informed, but a black plaster is the "first thought" in Chinese first aid. If the trouble heals under the plaster, well and good. Most frequently the discharge which cannot escape sets up an extensive suppuration which is combated by more plasters and the removal of the old ones which are attached to the walls with the belief that the sore is in that way attached to the building. Or, plaster over plaster will often be applied by the most energetic until a great knob sets out from the limb. Perhaps finally the ulceration extends so widely that it becomes impossible to cover it with a plaster when, a means of escape for pus being allowed, the wound may finally heal with great scars and deformity.

Decoctions are made from vegetable drugs and taken, while the dregs are placed at the cross roads or before the house with the idea that the passer-by will unconsciously carry away the disease for which the medicine was given.

At the temples the priests also treat disease and their operations are to be recommended over the methods of the regular practitioner for the reason that a man has some chance of recovering with the priests. Prescriptions are placed in hollow rods and the rods are presented after a manner of divination. These prescriptions call for various herbs which are supplied by the priests or must be

purchased—no doubt, arrangements having been made for the universal "come-shaw."

Drug shops are plentiful in China. A peculiar fact is that Chinese drugs are never sold in conjunction with foreign patent medicine or chemicals. The shops supplying strictly Chinese medicines stock the most peculiar and disgusting drugs. The imagination need not be stretched to comprehend the meaning of the above statement.

Stores are not so numerous selling foreign patent medicine put up in wrappers printed in Chinese. I have visited stores quite as well stocked with patent medicines and ready-put-up chemicals, etc., as are many small stores in the States. The Japanese and Americans are the leaders in the patent medicine business in China.

NANKING, CHINA, U. S. S. VILLALOBOS, September 8, 1911.

PARADOXES, SCIENTIFIC AND OTHERWISE.

France uses Celsius' thermometers, and Celsius was a Swede. The United States uses Fahrenheit's, a German. Germany uses Reaumur's, a Frenchman. Taine was a Frenchman, and the author of the leading work on English literature. Motley was an American, and author of a leading standard history of the Netherlands. Prescott, the American, is the authority on the conquest of Mexico. The Count of Paris was the first author of a good history of the Civil War. Von Holst, a German, is authority on the history of the American Constitution. Carl Schurz, a German, is the authority on the history of Henry Clay. Charles Rice, a German, was the leader of the U. S. P. revision for years in his time. And I might go on indefinitely; but, last, and not least, I quote your Otto Raubenheimer as authority on what hapened at the Brussels Conference of Pharmacy. The Carmania reached the Voltuno first and saved only one. All the later arrivals saved more, knocking another old saw into a cocked hat,—"First come, first served." Truly paradox and crossgrainedness are trumps. The word "quarter-sawed oak" is used every day. I have to find the carpenter yet who even knows what that means, let alone explaining it to the uninitiated.

Not speaking about r , but just an every-day observation, you meet people who acclaim that they believe nothing except what they see. I just see the setting sun in the bright windows east from me. I see the sun, but the setting sun is not there. Looks as if the formula might stand modification.—*W. B. Bodemann, in The Practical Druggist.*

Editorial Notes and Announcements

JAMES H. BEAL, Editor.....Scio, O.

All communications for insertion in the JOURNAL, or respecting advertising should be sent to the Editor.

The Association does not accept responsibility for the opinions of contributors. Offensive personalities must be avoided.

Under the rules of the Post Office the JOURNAL can be regularly mailed only to bona-fide paid subscribers. Subscriptions and association dues should be sent to the Treasurer, H. M. Whelpley, 2342 Albion Place, St. Louis, Mo.

Requests for back numbers, and claims for missing numbers should be sent to the Editor.

Claims for missing numbers will not be allowed if sufficient notice has not been given of change of address, and in no case if received later than sixty days from the date of issue.

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REPRINTS.

If the request is made at the time copy is submitted, authors will be furnished with not to exceed 50 reprints, without cover, of papers accepted for publication in the JOURNAL.

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Orders for reprints may be sent either to the Editor, or to the Stoneman Press Co Columbus, Ohio.

WRONG CUT USED.

In the obituary notice of H. W. Carter, appearing on page 1485 of the November JOURNAL, a cut of Frank H. Carter, the well-known pharmacist of Indianapolis, was used through inadvertance.

The cut was borrowed from another drug publication, and being sent direct to the printing office, was not seen by the editor until after the JOURNAL was distributed.

We are happy to be able to say that Mr. Frank H. Carter is still in the flesh and in good health, and expects to greet his A. Ph. A. friends at the Detroit meeting next year.

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A DIFFERENT INSTITUTION.

Prof. Otto Raubenheimer has called the editor's attention to the fact that the institution with which he and Prof. Leon Lascoff are connected is the Department of Pharmacy of the University of the State of New Jersey, and not the New Jersey College of Pharmacy, as stated in the November JOURNAL.

The first named department of pharmacy was founded by the late Prof. Herman J. Lohmann, long an active member of the A. Ph. A., and at one time president of the New York Branch.

During the past year the college buildings have been remodeled and four new laboratories established, namely, pharmaceutical, chemical and biological laboratories, and a special laboratory for pharmaceutical research.

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GRAND EUROPEAN TOUR OF THE PHARMACISTS OF THE UNITED STATES AND CANADA.

July 2 to August 24, 1914, including a visit to the most important capitals and cities of the European continent. Under the auspices of the German Apothecaries Society of the city of New York.

IMPORTANT INFORMATION, CONDITIONS AND SUGGESTIONS.

1. The pharmacists of the United States and Canada, their families, and friends, are invited to share the privilege of joining this European tour.

2. The duration of the tour from New York and return is fifty to fifty-three days.

3. The cost of the entire tour is $270.

4. The rate of $270 includes:

(a) A steamship ticket in the first cabin of the North German Lloyd steamship "Friederich der Grosse," sailing July 2, 1914, to Bremen. (For the very best rooms on the ship an additional charge of from $5 to $10 will be made.)

(b) A steamship ticket in the first cabin of the North German Lloyd steamship "Bremen," sailing August 15 from Bremen or August 16 from Boulogne sur mer to New York. (For the very best rooms on this ship, an additional charge of from $5 to $10 will be made.)

(c) First class hotels, three meals a day, i. e. continental breakfast, luncheon, supper. Transfers from hotels to stations and vice versa. Porterage, gratuities to servants at the hotels and restaurants, free allowance of baggage on the ocean according to the rules of the steamship company, and free transportation of two suit cases for the continental voyage from Bremen to Boulogne sur mer over the route of the itinerary.

(d) Special train of second class cars (similar to our first class travel) on the continent, from Bremen to Boulogne sur mer.

5. The rate does not include beverages, personal expenses, bath, laundry, gratuities to stewards on the ocean steamers and the railroad ticket from Paris to the ports of embarkment for the home journey, except Boulogne.

6. Membership in this tour is secured by a deposit of $35, payable in New York funds to Mr. Robert S. Lehman, treasurer of the Pharmacists European Tour Committee, 375 Third avenue, New York City; assignments of rooms on the steamers (a most important item) will be made in the order deposits are received. The balance of the rate will be due on June 1, 1914.

IMPORTANT NOTICE.

If, for any unforseen reason, prospective members of the tour should be prevented from sailing with the tour on July 2, all payments will be refunded to them, less $20; but of this amount $15 will be refunded as soon as the steamship reservation is resold (a very easy matter, on account of the departure for Europe being scheduled at the time of the very heaviest ocean steamship traffic to Europe); the remainder of $5 will be retained by the German Apothecaries Society for proportionate share of expenses incurred by organizing the European tour.

It gives the committee pleasure to announce that at the date of issue of this circular, October 20, 1913, more than fifty pharmacists from all parts of the United States have definitely booked as members of the American Pharmacists European tour. Steamship accommodation being assigned according to precedence in registration, the committee advises those who intend to join the tour to book at once.

It is impossible to cover in this leaflet all points regarding this tour; but all inquires will be answered gladly and promptly by Dr. Wm. C. Alpers, 744 Marbridge Building, New York City, or any member of the European Tour Committee.

Executive Committee: Dr. W. C. Alpers, chairman European Tour Committee; Mr. Robert S. Lehman, treasurer European Tour Committee; Mr. Otto P. Gilbert, Mr. Geo. T. Riefflin, Mr. Hugo Kantrowitz, members European Tour Committee; Dr. Charles Klippert, president, ex officio; Mr. Carl Baum, secretary, ex officio.

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AMERICAN DRUGGISTS' FIRE INSURANCE COMPANY MEETING.

The regular quarterly meeting of the executive board of the A. D. F. I. Company was held in Cincinnati, November 14 and 15. There were present, Messrs. Avery, Heinritz, Beal, Kauffman, Rothwell, Zwick and Freericks. Directions and preliminary arrangements were made with reference to the annual stockholders' and directors' meetings, which will take place on the tenth and eleventh of February, 1914. The board found the third quarter of the company's business to show splendid progress, and it is now certain that the business of the company for the year will be considerably in excess of $12,000,000 of insurance written.

On the thirteenth day of September, the total business in force amounted to $11,789,393 at a premium of $121,253.88, of which amount there was reinsured $939,198.50 at a premium of $11,767.94.

The losses for the first nine months of the year amounted to $32,557.47. The expense charged against the business of the first nine months amounted to $31,847.39. The total income for the first nine months amounted to $117,211.29, and the total disbursements, including bond purchases and dividends, amounted to $125,687.51. The total U. S. and Ohio, county and municipal bonds of the company have a par value of $309,111.14.

Of General Interest

OUR HONORARY PRESIDENT, ALBERT BROWN LYONS, A. M., M. D., F. R. C. S.

In this age of eugenics a biograhy, however brief, cannot begin with a birth, for the part that heredity plays in life may throw more light on character than all other factors together. One may find in heredity the key to action and its impulses.

In 1831 the American Board of Foreign Missions sent to the Hawaiian Islands Rev.

ALBERT BROWN LYONS.

Lorenzo Lyons, then a young man of 24. He worked as a missionary on the island Hawaii for 54 years, building during that time 14 churches and winning the devotion of the king as well as the people. He was a small man, weighing less than 110 pounds, but he had a mighty spirit and an untiring enthusiasm. When he died the king sent a Hawaiian flag in which to enshroud him, and the Sunday Schools of the island erected a monument to his memory.

Of the five children of this missionary the fourth was Albert Brown Lyons, born at Waimea, Hawaii, on April 1, 1841.

Preceding this missionary, or contemporaneous with him, were John Lyon, founder of the famous school for boys at Harrow on the Hill; Mary Lyon, founder of Holyoke College, and the first woman to find a place in the American Hall of Fame; General Nathaniel Lyon, who saved Missouri to the Union, for which he gave his life; Caleb Lyon, designer of the State seal of California, and first territorial governor of Idaho, and Hon. Wm. H. Lyon, who gained distinction by his just and efficient administration of the office of Indian Commissioner. All these were of the same family to which Dr. A. B. Lyons belongs.

His mother, whose maiden name was Smith, was a lineal descendant of John Smith who was banished from Massachusetts on account of his heterodox views, and was one of the six who accompanied Roger Williams when he sought greater freedom in Rhode Island. Among her ancestors was the Rev. Chad. Brown, first minister of the Baptist Church founded in Providence by the Roger Williams Colony, whose descendants have been prominent in the history of Rhode Island, and gave the name to Brown University.

Thus our Honorary President was born, not with a silver spoon in his mouth, but with a charge to keep, and traditions to uphold.

He received his early education in the example of a father who was not only a missionary sustained by the American Board, but was also superintendent of public schools, paymaster for the school teachers, land agent for the government, and postmaster for the town; and in the guidance of a mother who was of exceptional force of character and unusual ability.

The school privileges of Hawaii at that time were very meager. He passed through the Punahou preparatory school, then under the auspices of the American Board as a school for the children of its missionaries, and en-

tered Oahu College as a sub freshman. This college was also under the auspices of the American Board, but did not carry its students beyond the sophomore courses, being intended as a feeder for American colleges rather than as a college in itself.

So far as books were concerned, he was inadequately prepared even for that undergrade, and he found himself heavily handicapped in trying to be a real college freshman. But he had already learned the value of correct observation through his mother, who, without education herself beyond the common schools, had nevertheless a keen interest in nature and the power to arouse ambition in her son. She had stimulated him while in the preparatory school to write compositions on such subjects as "The Ocean," "The Plurality of Worlds," and the "Six Days of Creation," which later developed into his mastery of astronomy, and a general interest in nature.

Her knowledge of botany did not extend beyond the Linnean classification of plants, but she made botany to him a living and fascinating study by setting him to collecting an herbarium and writing descriptions of every plant collected. In this way he gained a practical knowledge of the local flora, although he had no means of knowing the botanical names of the several species.

A further stimulus to study he found when he entered the college in the acquaintance of Sam Armstrong who was then a freshman there and a born leader of men. Armstrong later commanded a colored regiment in the U. S. Army during the civil war, and is known to the world as the founder of Hampton Institute. Lyons found himself in the classes with Armstrong and by dint of hard digging in due time caught up with his classmates and finished the two years of college work at Oahu College.

Then in order to earn money for further education he taught for a year in the preparatory school and also served as assessor of taxes for the district of South Kohala.

Then he entered Williams College in Massachusetts and graduated in 1865 as valedictorian of his class.

The next year he spent in teaching Chemistry and Physics at Eagleswood Military Academy in Perth Amboy, N. J.

Here he made the acquaintance of a graduate of the University of Michigan, and being impressed with the fact that the University at Ann Arbor was giving more attention to chemistry than other schools, he entered the medical course of the U. of M. as a means for continuing the study of chemistry.

Two years covered a medical course in those days, but Lyons took "everything in sight"—among the extras being a course in pharmaceutical chemistry conducted by Professor A. B. Prescott. This consisted largely of laboratory exercises, and considerable attention was paid to alkaloids,—the manufacture of morphine from opium, of quinine from cinchona, etc., being among the requirements. Thus it was under Professor Prescott that Dr. Lyons found his introduction to pharmaceutical and alkaloidal work.

Having received his M. D. degree he came to Detroit and was made assistant to Professor Duffield, who then occupied the chair of chemistry at the Detroit College of Medicine. Soon after the beginning of the term, Professor Duffield was taken with typhoid fever, and Dr. Lyons had the burden of the course for the remainder of the year. The following summer (that of 1869), Professor Duffield resigned to establish the manufacturing firm of Duffield, Parke & Co., which four years later became Parke, Davis & Co., and Dr. Lyons was made Professor of Chemistry, which position he held for twelve years.

But the salary of a professor of chemistry in a small school was not sufficient for either an adequate living or ambition, and he had already started a prescription store in connection with Dr. Andrews' office on Fort street. This business grew to considerable dimensions during the nine or ten years that he conducted it, and he then went into partnership with A. B. Stevens,—later to become Professor of Pharmacy in the University of Michigan,—on the corner of Lafayette and Shelby streets. This partnership was continued about two years, and in 1881, Dr. Lyons severed his connection with retail pharmacy and accepted a position with Parke, Davis & Co., as analytical and consulting chemist.

While with Parke, Davis & Co. he became impressed with the importance of standardization of such preparations as fluidextracts and of the alkaloidal drugs. He worked out standards for a number of drugs and their fluidextracts and the latter were placed on the market under the name of Normal Liquids, which name they held for many years. The standards which he then established some thirty years ago have remained

practically unchanged and have now received official sanction.

Dr. Lyons was the first to employ as a general assay method for the quantitative extraction of alkaloids, maceration of the powdered drug with a given volume of the appropriate solvent, in presence of ammonia, or what is now known as the aliquot method. This process he had previously applied to the commercial manufacture of cocaine from coca leaves. His work on alkaloids also lead to his publishing in 1887 of the Manual of Pharmaceutical Assaying, which book remained for many years the standard work on its subject in the United States.

In 1887 the Pharmaceutical Era was started in Detroit, and Dr. Lyons became its editor. Pharmaceutical journals were almost a novelty in those days, and he showed his qualifications as an editor in the breadth of view which the journal displayed and in the modesty of his editorials. He associated with himself Professors Prescott and Vaughan as coeditors, and the future Professors Stevens and Ruddiman as contributors. He inaugurated a series of historical articles of more than passing interest and maintained an Index Pharmaceuticus which gives a comprehensive survey of the periodical pharmaceutical literature of 25 years ago.

His name appears in the Era as editor during four years, but in 1888 he was appointed government chemist for the Hawaiian Islands and went to Honolulu.

Here the dynamic energy and versatility of the man first displayed itself without restraint, and in addition to his duties as government chemist he took the Professorship of Chemistry in his former Alma Mater, Oahu College, and taught not only chemistry, but also physics, botany, zoology, physical geography, logic, geology and astronomy.

As Oliver Wendell Holmes puts it, he "occupied not a chair, but a whole settee." In spite of the variety and number of subjects, his was no perfunctory teaching for he made an impression on his students which is shown to this day in frequent letters and tokens of esteem. That a man could teach eight different subjects in a college and yet so impress his students that they voluntarily remember him by mail 20 to 25 years later and over thousands of intervening miles, is itself most remarkable. Few can master a whole settee so effectually.

Among his students who still correspond with him and have since distinguished themselves are Professor Hiram Bingham, now of Yale University, who conducted the expedition for the exploration of Peru and discovered the prehistoric fortified city of the Incas near Cuzco. Professor Bingham says: "Dr. Lyons has always had a very warm place in my heart. I shall never forget how he taught me the joys of living out of doors and of exploring. My work would never have taken such a satisfactory form and yielded as interesting results had I not had those years of early training with him."

Another student writes: "He opened my eyes to the wonder and beauty of the out of door world"; and another, "The years with him meant enrichment for life, for he opened new worlds to his pupils."

M. Castle, Jr., now Professor of English at Harvard, and C. Montague Cooke, now in charge of the government aquarium at Honolulu, were among his pupils.

His interest in geology took a practical aspect in a study of the volcanic soils of the Islands and which resulted in some important contributions to their geological history. These were reported in papers published in the American Journal of Sciences.

In following his zoölogical studies he made a collection of shells which is one of the most complete in existence, and which includes many hundreds of the peculiar tree-shells of the Islands. This collection he still holds, of course properly classified, and it is one which would grace any of the large museums. It is a most interesting exhibit, the tree-shells, particularly, being quite different from the more common sea-shells. Moreover he is an acknowledged authority on conchology.

He had on his return from the Islands a considerable collection of geological specimens, but gave the greater portion of this to the predecessors of the Detroit Museum of Art.

In botany he is an authority on ferns, being consulted frequently from various parts of the world on this subject. His general botanical knowledge is often a surprise to his friends when he identifies, as he often does, specimens found by the wayside or brought into his presence. He delights in raising some of the rarer plants about his house for decorative purposes.

Whether astronomy is responsible in any degree for his mathematical abilities the

writer does not know, but these are not the least of his talents. They count so much that when the Ninth Committee of Revision of the U. S. Pharmacopœia was organized, the Chairman declared that of its fifty members Dr. Lyons was the one man to act as Chairman of the Subcommittee on Tables.

Thus his mastery of the "settee" at Oahu is evident not only to his former students in Honolulu but to his associates here in the United States.

In 1897 he returned to Detroit, and took charge of the chemical department of Nelson Baker & Co., which position he still holds.

Dr. Lyons joined the American Pharmaceutical Association in 1885, and continued his membership during the years he spent in Hawaii. In 1887 he was elected Secretary of the Scientific Section, and again in 1897. In 1898 he was made Chairman of the Section on Education and Legislation. He has also served on the Committee on Revision of the Pharmacopœia of the Association several times, and was its Chairman in 1906-7.

In 1900 he was elected a member of the Committee of Revision of the United States Pharmacopœia, and again elected to the Ninth Revision Committee in 1910. He has done valuable work for both these committees on the Tables of the Pharmacopœia, and on its assay processes.

He has been a Fellow of the Royal Chemical Society of London for about 30 years.

In 1911 he was made an honorary member of the British Pharmaceutical Conference.

His contributions to pharmaceutical literature have been largely along the lines of alkaloidal assays and tests, and specific gravity tables. He has contributed about a dozen papers to the A. Ph. A., a number of papers to the Michigan Pharmaceutical Association, and was a contributor to the Eighth International Congress of Chemistry. Besides these, he has contributed to the pharmaceutical journals from time to time.

His Manual of Pharmaceutical Assaying was revised in 1899 and then published under the title "Practical Assaying of Drugs and Galenicals."

In 1900 he published a useful book on botanical synonyms, entitled "Plant Names, Scientific and Popular."

His most voluminous literary work has been a genealogy of the American Lyon families, which occupied all his leisure hours for several years, and though originally intended for one volume, was finally issued about seven years ago in three volumes. Probably this work prevented the publication of more pharmaceutical papers during the years he was occupied upon it.

Dr. Lyons' extreme modesty has held him back from public prominence and has made him appear indifferent to public honors. Yet his is not the indifference of selfishness, but only a difference in estimation of values. Friendship he values highly, but flattery cannot deceive him.

Dr. Lyons was married April 25, 1878, to Miss Edith M. Eddy, a daughter of Rev. Zachary Eddy, D. D., and a direct descendant of John Alden and Miles Standish, of Mayflower fame. She also has marked literary abilities and has written both poetry and prose.

Both have been active in church work, Dr. Lyons having served as deacon in the Central Union church (undenominational), of Honolulu, and also in the First Congregational church of Detroit. The latter church recently paid him special honor in electing him life deacon.

His daughter, Miss Lucia E. Lyons, graduated from the University of Michigan in 1902 and was sent as a missionary to North China by the American Board in 1905.

She has shown a special qualification for languages, having acquired a fluent command of the Mandarin as well as the Shantung dialects. She has served in China six years, and is now at home on a furlough.

His son, Albert E. Lyons, graduated from Michigan University in 1908, having specialized in languages. He has spent three seasons traveling in France and Spain, and for three years served as instructor in French and Spanish at the University of Michigan. He is now serving as instructor in Spanish at the University of Wisconsin, where he is taking special advanced courses of study.

WILBUR L. SCOVILLE.

<>

ROSTER OF SERGEANTS FIRST CLASS, U. S. ARMY.*

FORTS IN U. S.

Fort Adams, R. I...... 29 Whitmarsh, P. L.
Fort Andrews, Mass... 97 Brooks, R. R.
Fort Apache, Ariz.....152 Ransom, L.
Fort Bliss, Texas..... 11 Hodgdon, C. B.
234 Tandrop, O. A.

*Numbers preceding names indicate relative rank.

Fort Baker, Cal......187 McKenzie, R. S.
Fort Banks, Mass..... 64 Sands, J. R.
Fort Barrancas, Fla...258 McKelvey, T.
Fort Barry, Cal..... 13 Rose, M.
Fort Bayard, N. M.
General Hospital.... 73 Bitterman, T.
74 Allen, U. S. G.
104 Yeager, C. E.
127 Tyler, B. F.
202 Donovan, T. F.
278 Bush, A. A.
296 Staley, R.
Fort Canby, Wash....114 Hoberg, N. A.
Fort Casey, Wash.....149 Greeno, E. O.
Fort Caswell, N. C.... 71 Lothrop, J. N.
Fort Clark, Texas....220 Lange, P. M.
Fort Constitution, N. H.....170 Williamson,W. E.
Fort Columbia, Wash. 10 Manning, J. H.
Fort Crockett, Tex...185 Stockwell, H.
Fort Dade, Fla.....236 Wineken, P. E.
Fort DesMoines, Iowa.122 Ferguson, R. S.
Fort Douglas, Utah... 57 Donnan, A. S.
142 Cameron, R.
Fort DuPont, Del..... 15 Knapp, G.
Fort Ethan Allen, Vt. 32 MacCleary, H. R.
Fort Flagler, Wash...239 Schultz, E.
Fort George Wright, Wash. .....102 Huff, J.
Fort Greble, R. I.....203 Mathews, E. D.
Fort Hamilton, N. Y..286 Lederer, W.
Fort Hancock, N. J...101 Compton, P.
Fort Huachuca, Ariz..223 Tanner, P.
284 Manns, G. W.
Fort Hunt, Va..... 94 Person, T.
Fort Howard, Md.....113 Pennington, S.W.
Fort Jay, N. Y..... 18 Corson, J. M.
Fort Keogh, Mont....206 Freebourne, W. J.
Fort Lawton, Wash...180 Lyda, W. K.
Fort Leavenworth, Kans. ..... 81 Newport, J. F.
Fort Leavenworth, Prison .....289 Harrison, F. A.
Fort Logan, Colo..... 47 Anderson J. B.
165 Morehouse, A.
259 Armstrong, E. J.
Fort Miley, Cal..... 27 Stewart, L. R.
Fort Missoula, Mont..131 Murphy, W. F.
Fort Monroe, Va.....106 Hodgins, J.
190 Webster, H. J.
Fort Morgan, Ala.....124 Weber, E.
Fort Mott, N. J.....179 Brown, J. O.
Fort Moultrie, S. C... 61 LaMar, L. J.
Fort Myer, Va.....130 Weir, S. A.
Fort Meade, S. D.....214 Goosey, G. H.
Fort McIntosh, Tex... 91 Dailey, J.
Fort McKinley, Me... 80 Fitts, F. M.
Fort McDowell, Cal...126 Hamner, J. F.
195 Bishop, W.
Fort Niagara, N. Y...120 Owen, F. S.
Fort Oglethrope, Ga.. 16 Brower, T. E.
267 Smith, C. P.
Fort Omaha, Nebr.... 12 Cox, S. G.
Fort Ontario, N. Y... 89 Bice, L. R.
Fort Porter, N. Y....112 White, F. E.
Fort Reno, Okla..... 54 Vass, G. E.
193 McEnroe, R. L.
Fort Revere, Mass....280 Praneuf, J.
Fort Riley, Kans..... 42 Hanson, B.
78 Nudd, B. F.
116 Gorton, G. D.
Fort Robinson, Nebr..135 Evans, W. D.
Fort Rodman, Mass...254 Luscomb, B. R.
Fort, Roots, L. H., Ark. ..... 69 MacPherson, A.
Fort Rosecrans, Cal... 34 Donahey, W. J.
Fort, Russell, D. A., Wyo. .....115 Jennings, H. M.
Fort Sam Houston, Texas ..... 37 Curtis, H.
63 Gerlach, J. L.
96 Maluf, N. K.
282 Thomson, C. L.
Fort Screven, Ga..... 56 Loebenstein, C. T.
Fort Sheridan, Ill.....167 Weber, G. B.
Fort Sill, Okla.....188 Jacks, R. B.
Fort Slocum, N. Y....161 Nolan, A.
227 Winkler, H.
Fort Stevens, Ore..... 2 Livingstone,W. C.
Fort Strong, Mass....147 Williams, F. R.
Fort Terry, N. Y..... 70 Burkard, O.
Fort Thomas, Ky.....261 Shull, G. J.
Fort Totten, N. Y.... 26 Korn, A.
111 Leedom, C. B.
Fort Wadsworth, N.Y.198 Walters, W. D.
Fort Ward, Wash.....148 Hayes, A. W.
Fort Warren, Mass....291 Mael, J. H.
Fort Washington, Md. 38 Simmons, F. S.
145 Sweeney, J.
Fort Williams, Me....146 Long, C. B.
Fort Winfield Scott, Cal. ..... 14 Hoch, H.
Fort Wood, N. Y.....174 Duignan, J.
Fort Worden, Wash...290 Bartlett, C. R.
Fort, Wright, C. H., N. Y.....218 Perry, J. O.
Fort Yellowstone, Wyo. ..... 86 Powell, W. N.
Fort Mackenzie, Wyo. 85 Bjork, N. J.
287 Chase, G. P.

BARRACKS IN U. S.

Columbus Barracks, O... 58 Baigent, J.
105 Maloney, P. J.
132 Cole, E.
199 Harp, L. D.
253 Christensen, J.
272 Johnson, R. V.
Jackson Barracks, La..187 Greene, E. F.
Jefferson Barracks, Mo. .....157 Young, G. C.
194 Wickett, F. W.
229 Down, E. J.
Key West Barracks, Fla. .....297 Dahl, M.
Madison Barracks, N. Y......123 Edwards, R. T.
Plattsburg Barracks, N. Y...... 77 Arnold, W. E.
Vancouver Barracks, Wash. .....128 England, T. M.
143 Howard, M. S.
191 Albertson, T. E.
Washington Barracks, D. C..... 49 Roby, A. A.

ARSENALS IN U. S.

Augusta, Ga.....121 Neil, M.
175 Timbrook, D.
Benicia, Cal..... 82 Hornung, O. H.
Frankfort, Pa..... 53 Arendt, M.
Rock Island, Ill..... 3 Boyle, J. H.
36 Strauss, J.
Springfield, Mass..... 4 Looby, P.
Watertown, Mass.....151 Breitsprecher, A.
Watervliet, N. Y..... 41 Gates, I. E.

ATTENDING SURGEONS OFFICES.

Chicago, Ill.....140 Lyons, A. J.
New York, N. Y..... 8 Marsden, R.
San Francisco, Cal....164 Norman, A. J.
Washington, D. C.....182 Whitehead, J. C.

ARMY MEDICAL SCHOOL.

Washington, D. C..... 7 Gabsch, O.
117 Davis, H. A.
173 Von Oehsen, H.
211 Stimmel, C. O.
244 Tracey, A.

DEPT. SURGEON'S OFFICES.

Eastern, Grovernors Island, N. Y..... 1 Robertson, D.
Western, San Francisco, Cal.....295 Johnson, H.

FIELD MEDICAL SUPPLY DEPOT.

Washington, D. C.....245 Luve, F.

ARMY AND NAVY GENERAL HOSPITAL.

Hot Springs, Ark..... 33 McKenzie, G. W.
221 Dawson, J. H.

LETTERMAN GENERAL HOSPITAL.

San Francisco, Cal.... 20 Kincaid, K. G.
22 Brown, C. L.
52 Van Sickle G. C.
65 Bristow, T. G.
141 Irving, R. S.
172 Stein, L. H.

DEPOT QUARTERMASTER.

Philadelphia, Pa..... 9 Simmel, M.
Presido of San Francisco, Cal..... 84 Karlson, I. N.
100 Beale, G. E.
134 Koon, S. J.
163 Berkowitz, A. J.
273 Thickstum, D. W.
Presido of Monterey, Cal. .....243 Manning, C. G.
294 Hurley, J. J.
West Point, N. Y.....216 Block, H.
248 Bonner, W. C.

WALTER REED GENERAL HOSPITAL.

Takoma, D. C..... 28 Leonard, C. L.
60 Thomas, F.
79 Thuney, F. E.
184 Anderson, C. H.
189 Barker, Q. J.

U. S. ARMY TRANSPORTS IN COMMISSION.

"Logan" ..... 67 Doran, G. C.
"Kilpatrick" .....125 Kelly, M.
"Thomas" .....136 Reynolds, G.
"Meade" .....137 Weinberg, M.
"Sumner" .....155 Hare, R. F.
"Warren" .....203 Rand, F. A.
"Sherman" .....267 Steiner, F.
"McClellan" .....270 Hopkins, I. J.

ON THE BORDER OF MEXICO, ETC.

Camp at Columbus, N. M.....264 Hughes, F. E.
Camp at Douglas, Ariz.238 Heppner, C.

WITH THE SECOND DIVISION.

Texas City, Tex., and Galveston, Tex..... 6 Riess, H. W.
24 Whelan, W. E.
50 Elliott, C. S.
83 Shaw, C. N.
129 Hardenbrook, B.
171 Crampton, W. E.
262 Aldridge, C. A.
274 Jorte, C. H.
283 Bowers, Y. L.
46 Meade, H.
108 Nicodemus, F. O.
156 Luse, W. E.
215 Pennypacker, E.M.
263 Simons, E. H.

MEDICAL SUPPLY DEPOT, BASE AND PORT OF EMBARKATION.

Galveston, Texas.....169 Holland, H.

FIELD HOSPITAL NO. 3.

Texas City, Texas.....207 Aicklen, H.
251 Bednarski, A.
265 Burke, E.

AMBULANCE CO. NO. 3.

Texas City, Texas..... 35 Killikelley, H.
222 Everett, O. V.
271 Heatherly, M.
293 Wells, F. O.

STATIONED ELSEWHERE IN U. S.

Ambulance Company No. 1.

Fort D. A. Russell, Wyo. .....162 Stevenson, E.

Ambulance Company No. 2.

Presido, San Francisco, Cal..... 93 Harris, S. J.
246 Dohle, M.

Field Hospital No. 1.

Fort D. A. Russell, Wyo. ..... 66 Collins, J. L.
99 Leiblinger, J.
150 George, W.
153 Kauffman, E. C.

Field Hospital No. 2.

Presido, San Francisco, Cal.....178 Anderson, B.
205 Barclay, H. M.
247 Dean, H. N.

On furlough, in U. S., unassigned .....213 Seith, L. F.
260 Coryell, C. W.

OUTSIDE OF U. S.

ALASKA.

Fort Davis..... 40 Walker, T. J.
Fort Egbert.....183 Davison, T. P.
Fort Liscum..... 30 Leopold, S. H.
Fort W. H. Seward... 59 Scull, J. A.
Fort St. Michaels.....154 Fuller, H. N.
Fort Gibbon.....232 Kimball, C. F.
298 Murphy, W. J.
Fairbanks .....201 Fisher, A. G.
Nulato ..... 62 Wood, R. A.

CHINA.

5 Senecal, H. C.
39 Hickson, J. H.

HONOLULU, HAIWAII, ETC.

Fort DeRussey.....181 Donovan, D. C.
Fort Kamehameha.....217 Spencer, A. C.
Fort Ruger.....158 Heazlitt, F. J.
Fort Shafter.....160 Herman, C.
231 Mims, M. D.
249 Coulman, R.
252 Goodwin, T. G.
Schofield Barracks.....226 Sykes, E. D.
237 Cook, W. H.
268 Ogle, P. L.
279 Walters, C. C.
285 Kaufer, O.

PANAMA.

Camp E. S. Otis.....299 Howson, W. S.

PORTO RICO.

San Juan.....219 Baum, F. C.

ON DUTY IN THE PHILIPPINES.

17 Walker, R. M.	19 Neville, A.
21 Douglass, G. C.	23 Byers, J. D.
25 Young, C. C.	31 Phares, W. L.
43 Sharman, H.	44 Fonteyne, G.
45 Butler, W. G.	48 Frese, O. F.
51 Graner, C.	55 Williams, T. G.
68 Behre, J. R.	72 Hicks, G. W.
75 Smelsey, S.	76 Holt, F.
87 Marcus, S.	88 Cushman, G.
90 Eiseman, F. J.	92 Keralla, J.
95 Benche, C. S.	98 Hitch, E. T.
107 Hahn, G.	109 Eble, C. F.
110 McFarland, W.	119 Dickson, R. A.
119 LaGrinder, R. A.	133 Thomas, W. H.
138 Gavagan, E. D.	139 Philipps, I. B.
144 Reiter, H. L.	159 Van Aller, A.
166 Brown, A. E.	168 Taylor, R. E.
176 Freeman, A.	177 Robinson, D. W.
192 Kennedy, R. G.	196 Lovelley, E. A. jr.
197 Rasmussen, N.	200 Linden, R. R.
204 Soekland, W. G.	208 Ehrenwerth, J. B.
209 Crawford, F. A.	210 James, E. H.
212 Lienhart, A. H.	224 Paul, G. H.
225 Clark, A. W.	228 Westra, R.
230 Elcock, W. W.	233 Hansen, M. K.
235 Kroger, H. A. R.	240 Killikelly, C.
241 Nelson, R. P.	242 Boyer, R. C.
250 Hogan, M. J.	255 Montgomery, M.
256 Ross, R.	257 Joyce, E. L.
266 Schultheis, R.	269 Pollard, L. J.
275 Luhman, F.	277 Tanney, L.
281 Siedler, A.	288 Moore, F.
292 Merryman, J. R.	300 Newman, E.

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ELI LILLY CO. ACQUIRES RIGHTS TO LLOYD'S REAGENT AND ALCRESTA ALKALOID.

Arrangements have been consummated whereby the firm of Eli Lilly & Company, Indianapolis, Ind., have acquired the sole privilege of making and marketing the alkaloidal precipitant known as Lloyd's Reagent,

which is a form of hydrous aluminum silicate. They have also acquired the right to manufacture all commercial products, medicinal or otherwise, such as tablets, triturates, pills, capsules, and pharmaceutical preparations generally, in which the trade-mark term "Alcresta" is employed. Whosoever may be concerned in this subject, or in acquiring privileges and rights under the patents granted the undersigned, either at home or abroad, is hereby referred to the aforenamed firm, Eli Lilly & Company, the undersigned being relieved from all commercial connection with the subject.

It is the mutual desire of both the undersigned and of Eli Lilly & Company, that every possible opportunity be extended in the direction of chemists and scientists engaged in research work. Both will therefore take pleasure in extending whatever scientific data may be at their command, and to investigators, whether physiological, chemical or clinical, Lloyd's Reagent will be supplied by Eli Lilly & Company at a special price, which will be announced later.

It should be stated that inasmuch as the reagent has become commonly known as "Lloyd's Reagent," that term, in connection with the scientific name, "Hydrous Aluminum Silicate," will hereafter be accepted as the name of the reagent itself, which will be thus labeled, the short term "Alcresta," being a trade-mark term, applied only to the commercial products of this reagent, manufactured by Eli Lilly & Company.

Respectfully,

JOHN URI LLOYD.

Cincinnati, Ohio, Nov. 17, 1913.

THE LAST WORD OF WISDOM.

Success is for the loud talkers, the self-convinced dogmatists. Everything is admitted on condition that it be noisily proclaimed. Let us throw off this sham and recognize that, in reality, we know nothing about anything if things were probed to the bottom. Scientifically, Nature is a riddle without a definite solution to satisfy man's curiosity. Hypothesis follows hypothesis; the theoretical rubbish heap accumulates, and truth ever eludes us. To know how not to know might well be the last word of wisdom.—*Henri Fabre.*

Proceedings of the Local Branches

"All papers presented to the Association and its branches shall become the property of the Association, with the understanding that they are not to be published in any other publication than those of the Association, except by consent of the Committee on Publication."—By-Laws, Chapter X, Art. III.

Reports of the meetings of the Local Branches should be mailed to the editor on the day following the meeting, if possible. Minutes should be *plainly* written, or typewritten, with wide spaces between the lines. Care should be taken to give proper names correctly, and manuscript should be signed by the reporter.

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NEW ENGLAND BRANCH.

The first regular meeting of the season was held Wednesday evening, November 12, at Hotel Bellevue, Boston, Mass.

Dinner was served at half-past seven, after which President Estabrook presented the speakers, giving each the subject, "How may we best interpret the changing conditions in Pharmacy"?

The subject was broad and each gentleman took a different view of it, but it was pleasing to note that each one believed fully that pharmacy and humanity were getting better rather than worse, that our lot is happier than our fathers'.

C. H. Packard, President of the Massachusetts College of Pharmacy, divided his remarks between the College and the A. Ph. A., tracing the changes during the existence of each and showing each step to be one of progress. Incidentally he gave a little A. Ph. A. membership talk, and some of the blanks given out ought to come back with five dollar bills.

President J. F. Finneran of the N. A. R. D. spoke of the growth of that organization and he outlined the establishment of state boards and showed by inspectors' records the present high standards maintained in the majority of drug stores.

Wilfred F. Root of Vermont, representing the state board of that state, related the modern methods of examining applicants, a revelation when compared with the old unfair catch-question method. He also reviewed the

adoption and extension of reciprocity between states.

W. D. Grace of Portsmouth, N. H., brought greetings from his state and commended the work of this Branch.

T. J. Bradley, Dean of the Massachusetts College of Pharmacy, went over his early experiences in pharmacy, commenting upon the advances made by colleges and by pharmacy generally.

W. S. Briry, appointed to the Massachusetts State Board a few hours previously, received the heartiest congratulations from the assembled pharmacists. Mr. Briry responded briefly, thanking all for their interest in his behalf.

Willis E. Terrill, Montpelier, Vermont, spoke briefly on the prosperous outlook for pharmacy in the future.

F. A. Hubbard, Chairman of the Legislative Committee of the Massachusetts S. Ph. A. addressed the meeting upon the extremely rapid changes made by legislation. Altogether he thought the new laws were better and more just than the old, but he impressed upon the audience the fact that the associations must be strengthened as much as possible, and that all should work together in preventing undesirable bills promoted by the misinformed from becoming laws.

R. ALBRO NEWTON, Secretary.

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NASHVILLE BRANCH.

At the meeting of the Nashville Branch of the American Pharmaceutical Association held in Furman Hall, Thursday afternoon, November 13th, the subject of the location of the A. Ph. A. Headquarters was freely discussed and the opinion unanimously expressed that it should be located in Nashville. A committee consisting of W. R. White, Ira B. Clark and S. C. Davis was appointed to cooperate with the Nashville Industrial Bureau in properly presenting Nashville's claims to the Council.

"Articles for Quick Dispensing" was the regular subject for discussion. Ira B. Clark began the discussion by saying that more stock solutions were used by the large uptown stores than the suburban stores, since they had a much larger prescription business. He kept two solutions for making Sol. Ammon. Acetate, Sol. Boric Acid, Sat. Sol. Pot. Iodide, and a few others, but said the Sol. Pot. Iodide become colored after a while.

Dr. E. A. Ruddiman stated that a solution of pure potassium iodide would color in three or four weeks, but that the commercial article would keep several months on account of the carbonate usually present in it.

Dr. J. M. Rogoff thought light and temperature had much to do with the change. He strongly discouraged the use of stock alkaloidal solutions. He gave the results of some recent experiments he had made on frogs with solutions of cocaine, morphine, strychnine, atropine, codeine, nicotine and thebaine which had been made five or six weeks, all of which showed signs of deterioration. He and Dr. Ruddiman agreed to do some experimental work along these lines and will report their results to the Branch.

Messrs. Hutton, Clark and Davis discussed the keeping qualities of Ointments, and were of the opinion that retailers neglected this class of preparations too much. Most of them should be made fresh when needed.

How to keep Iron solutions from turning dark was discussed by Messrs. Burge, Davis, Ruddiman and White. Dr. Burge stated that he had found that Ammonia turned Iron solutions dark, and in making Elix. Phos. I. Q. and S. he does not neutralize with ammonia, leaving the solution acid, and in this way gets a nice green elixir that keeps a long time unchanged. Lead in the bottles and light were given as causes of the change. The Branch then adjourned.

W. R. WHITE, Secretary.

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CINCINNATI BRANCH.

The regular monthly meeting of the Cincinnati Branch, A. Ph. A., was held November 11, 1913, at Lloyd Library.

Prof. John Uri Lloyd opened the meeting, but on account of an urgent appointment, turned over his duties to Vice-President Prof. Theo. D. Wetterstroem.

The reading of the minutes of the previous meeting by the Secretary having been approved, a short business session ensued.

The report of the Membership Committee showed a total membership of forty, with the assurance of same being increased.

Prof. C. T. P. Fennel, as Chairman of the Committee on Pharmaceutical Progress, gave an interesting talk, the subjects of which

being culled from various recent notes of the pharmaceutical press.

Among others he mentions Lloyd's New Process for the detection of alkaloids (acidulated water and Fullers earth, alkaline), failing to react with the usual Mayer's reagent.

He also referred to Raubenheimer's efforts to discourage the use of Synthetics and returning to the use of Botanics.

The use of soap bark as a constituent of beverages was condemned, while he also seeks information regarding a new product, known as "Sapanan."

He also cited from foreign journals a number of artificial products, containing a high amount of nitrogenous substances, intending to reduce the high cost of living; quoting figures regarding the claims of some of these artificial products as to their food value.

There are a number of these artificial compounds on the European market today.

He also mentioned Vegetable Milk, as well as the use of Radium and Radium Water, the curative and efficient properties of which seem apparently to be endorsed by the European medical profession.

He mentioned a new process for the production of artificial silk and called attention to what should really constitute the Castile Soap of the U. S. P.

The responsibility of the pharmacist was emphasized regarding the purchase of drugs and the reliability of chemicals, citing cases of govenment confiscation of Aspirin, which, although bearing the proper label, consisted mainly of sugar of milk and bicarbonate of soda. Also, Juniper Berries, which were nearly exhausted, still however retaining their natural form.

Professor Fennel received a vote of thanks for his interesting talk, and was then followed by Hon. Frank H. Freericks, who chose for his subject, "Some Laws of Interest to Pharmacists."

Mr. Freericks treated his subject in a masterly manner, giving exhaustive data upon some of the laws, that particularly affect the retail druggist, mentioning the fact for instance of the Agricultural Commission Act, which takes away all power from the State Board of Pharmacy, giving same to a commission of farmers.

He questions the efficacy of such procedure, as the Board of Pharmacy's offices are retarded to simply issuing certificates.

The antinarcotic law or so-called Duffey law was given special attention, showing the great inconveniences and unjust restrictions placed upon the retail pharmacist, if the absolute letter of the law were to be enforced and not the intent of the legislature.

Under the provisions of this act, it would be unlawful to dispense a mixture containing a narcotic drug, no matter how minute, except upon the written order of a physician. It would be unlawful to sell liniments, ointments, plasters, etc., if they contained even the faintest trace of any narcotic drug.

Mr. Freericks further pointed out a number of inconsistencies in the enforcement of such a law, and the Secretary as a result was ordered by the Association to send a communication to Gov. James Cox of the State of Ohio, voicing the members' protest against the enactment of the Duffey act into law.

Another law is the so-called Insecticide Law, calling for a license of twenty dollars annually for the manufacture of any insecticide or fungicide. This, however, under a recent ruling, applies only to the larger manufacturer and not the retail druggist.

Mr. Freericks' address was well received and was commended by the Chairman for the practical manner with which he treated his interesting subject.

Prof. Theo. D. Wetterstroem spoke briefly regarding establishing of rigid standards for the examination of the alkaloidal strength of crude drugs and their preparations, mentioning especially coca leaves and their products.

The meeting was better attended than usual and the members all voted to have spent a very enjoyable and instructive evening. CHAS. A. APMEYER, Secretary.

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DENVER BRANCH.

October Meeting.

Experience has proven that meetings are better attended when preceded by a dinner, so Branch votes to give monthly dinners.

Following last year's custom the Denver Branch launched its first meeting after the summer's rest by a dinner at the Albany Hotel, Tuesday evening, October 21st. An excellent meal, good attendance and a buoy-

ant spirit made this social preliminary exceptionally pleasant, while a box of Tampa-Cuba cigars, supplied through the courtesy of Mr. Cole, with the compliments of the Tampa-Cuba Cigar Co., added further to the comfort of the members during the business session which followed.

The latter was called to order by President Hover at 8 o'clock and after the reading and approval of the minutes of the May meeting the Library Committee reported on the work done during the summer months, and asked for instructions in regard to the purchase of books. On motion of Mr. Best the entire matter was left in the hands of the committee which was instructed to buy such books as it deemed advisable and the funds at their disposal permitted.

Mr. Clayton suggested that the representative of the Pacific Coast Borax Co. might give us an interesting paper on Borax and Boric Acid, if invited. The suggestion was appreciated and the Entertainment Committee instructed to invite Mr. Inderlied.

The Committee on Permanent Quarters had no report to make, but said they would try and have a report at the next meeting.

Mr. Alkire gave an interesting talk on his trip by auto to Cincinnati, and a brief report of the N. A. R. D. Convention, which will be supplemented by a fuller report at the next meeting.

Prof. Washburn, Dean of the School of Pharmacy of the University of Colorado, spoke at some length on the progress of the school and the hardships necessarily encountered in the work of establishing a new school. In regard to the third year that was planned to be given in Denver, Prof. Washburn said, that it could not come until sufficient students taking the three-year course could be enrolled to make the maintenance of this course in Denver possible. He urged that the pharmacists of Denver lend their moral support and aid to the school and expressed the belief that, with the cooperation of Denver druggists, the wish of the Branch in securing this third year given in Denver could soon be realized. He also extended an invitation to the Branch to visit the school. Several members discussed the subject, Messrs. Hensel, Bresler, Clayton, Clark and others taking part.

President Hover then spoke on the large investment in prescription stock in many drug stores having a very limited prescription business. He stated that the number of prescriptions filled did not warrant the investment necessarily tied up in this department of the store and that the resulting economic waste and the necessity of employing a registered man were one of the reasons for the depressed conditions of the drug business today. Something should be done. As one remedy he suggested the consolidation of the prescription departments of six to ten proximate stores in various neighborhoods into exclusive prescription pharmacies where all the prescription work of the so consolidated stores could be done. Such an agreement, if it could be reached, would mean greater efficiency, better service and increased profits for the druggists by cutting down maintenance expense and investment as well as restoring and increasing the confidence of the medical profession. The question was debated at some length and opinion was somewhat divided as to whether any pharmacist could be induced to give up his prescription department on such an agreement. Most of those present seemed to think that they would hate to part with their prescription department regardless of what agreement might be reached, but Mr. Clark, for one, expressed his willingness to enter such a plan. The argument drifted into the question of proprietary medicines, Mr. Hensel stating that he believed this part of the drug business was on the decline. Mr. Hover, however, offered some statistics which showed that the sum total of the volume of patent medicine business was practically the same today as it had been for a good many years, but that the variety or number of these preparations sold was steadily increasing, having doubled several times in the last decade. After this discussion was closed the Secretary read his report of the Sixty-first Annual Convention of the A. Ph. A., to which he was delegate from the Denver Branch and the Colorado Pharmacal Association.

On a query by the Secretary, it was moved and carried that all future meetings of the Denver Branch will be preceded by a dinner unless otherwise ordered by the Branch.

On account of President Hover's absence from the city at the date of the next regular meeting, it was decided to hold the November meeting a week earlier than usual, or November 11th. There being no further business, the meeting adjourned.

F. W. NITARDY, Secretary.

DENVER BRANCH.

November Meeting.

Members of the Denver Branch of the A. Ph. A. gathered at 6:45, November 11th, at the Albany Hotel for dinner, with District Attorney John Rush as guest of the evening, the following members being present: W. A. Hover, John Best, W. O. Scholtz, John A. Martin, L. Wilson, E. Powers, W. T. Hover, A. W. Clark, Charles J. Clayton, Adolph Swoboda, Henry Cordes, L. L. Alkire, C. H. Skinner, A. C. Cole, S. T. Hensel, R. H. McKenzie, B. W. Strickland, S. L. Bresler, V. Lagasse, Prof. J. Seymour, E. L. Scholtz and F. W. Nitardy.

After a very enjoyable meal the meeting was called to order by President Hover at 8:15. The minutes of the previous meeting were read and corrected in the statement "that the sum total of the volume of patent medicine business was practically the same today as it had been for a good many years," in that this statement applied to the percentage of the total volume of wholesale drug business done only. As the amount of business done had steadily and substantially increased from year to year, the patent medicine business had increased in the same proportion.

With this correction they were approved.

Mr. Clayton, Chairman of the Committee on Permanent Quarters for the Pharmaceutical Associations of Denver and the State, and the Board of Pharmacy, reported progress, stating that the committee had inspected various rooms and locations, but so far nothing to warrant the recommendation of definite plans and quarters had been accomplished. The committee would continue its work and report further at a later meeting.

The Library Committee reported briefly on the progress of the last three weeks and stated that it expected to have the books that its funds permit it to buy, as well as all other necessary details for the formal opening of the library, completed by the first of the year.

The Membership Committee had no report to make.

Mr. L. L. Alkire, delegate to the N. A. R. D. Convention, then read his report of the Cincinnati meeting.

Mr. A. W. Clark moved the adoption of the report, together with a recommendation for publication. The motion carried.

A paper, presented to the Section on Practical Pharmacy and Dispensing of the A. Ph. A. at the Nashville meeting, to which Mr. Hensel had made some additions since the date of that meeting, was then read by the author.

The title of the paper was, "What Is the Cause of the Instability of the Compound Syrup of the Phosphates (Chemical Food) N. F.?"

After a brief discussion Mr. Best moved the adoption and publication of the paper. The motion carried.

President Hover then arose and addressed District Attorney John Rush with the following words:

"This association, Mr. District Attorney, represents, as you see, the leading druggists of the city, this association being a branch of the A. Ph. A., which national association is of sixty-two years standing. This branch, representing as it does the national body, stands for the principles for which that body stands, standing for the best in ethical practice of pharmacy. We stand for this, and we stand for the enforcement of laws governing the practice of pharmacy, for the enforcement of laws intended to regulate the sale of intoxicating liquors, and also the enforcement of laws intended to regulate the sale of habit-forming drugs.

"We are thoroughly in harmony and sympathy with those laws as they now stand on the statute books. Some of these laws as applied locally, particularly in connection with the sale of intoxicating liquors, work a hardship on some of the retailers in business in various sections of the city, who carry as a part of their stocks of merchandise these goods in small quantities to be used for legitimate household purposes. Beyond that, I do not think that any member of this branch would advocate the sale or the use of intoxicating liquors by the retail druggists.

"Inasmuch as a recent decision in our district and supreme courts have brought about a condition that is not well understood, we thought it an opportune time for you to come before us and give us a little talk and some explanation of your interpretation of these decisions as applying to the sale of intoxicating liquors, and also as applied to the sale of habit-forming drugs.

"Our present statutes as regulating the sale of habit-forming drugs have largely been formulated and fathered by the retail druggists. Our national legislation, referred to by Mr. Alkire in his report, known as the Harrison bill, was in the first instance in an unworkable condition, as is most legislation that comes up before our legislative bodies, formulated in the first instance by

those who have not the requisite practical knowledge and experience in regard to the working of the law, which of itself might be very desirable.

"The Harrison law in the first instance was an unworkable proposition, but through the intervention of what is known as the National Drug Trade Conference, a conference composed of delegates from the National Wholesale Druggists Association, and from the parent body of this organization, and the National Association of Retail Druggists, the original bill was so modified as to put it in workable form, and these modifications were adopted by congress, and that bill as it now stands is as near perfect as a bill of that kind can be without the practical experience resulting from the enforcement of the law itself.

"With this explanation, Mr. District Attorney, I take pleasure in presenting you to this body."

District Attorney Rush, after expressing his pleasure to be able to address the meeting, explained at some length the several statutes regulating the sale of alcoholic liquors in the State of Colorado, and the interpretations which had been placed upon them by the Supreme Court. Following this, he discussed the provisions of the anti-narcotic laws and the policy of his office in regard to their enforcement.

In reply to the address Mr. Hover said:

"Mr. District Attorney, I am sure that the members of this body heartily endorse your wish and desires to make Denver a better place to live in. You may not be aware of it, but the law which you read from the statute books referring to the sale of cocaine originated in this body and was endorsed by this body before it was introduced into the legislature, as well as by the drug trade of the city of Denver. We therefore are in hearty sympathy with the enforcement of this law, and we are necessarily bound to assist you in its enforcement and in the carrying out of its provisions.

"There are some questions in connection with the rulings of your office bearing on the sale of certain malt liquors, etc., which probably the retailers of this body would like to have enlightenment on. Malt liquors, as you are probably aware, represent quite a range. The most common type, of course, are the varieties of beer. We have, however, some medicinal malt preparations about which there might be a question, and if you are prepared to give a ruling on some of these preparations, I am sure that such a ruling would be desirable in the present existing circumstances. I have reference to the type of malt preparations, of which a preparation known as E. & M. Extract of Malt might serve as an example. This is a medicinal malt preparation used by nursing mothers and invalids, and is sold more frequently without than with a physician's prescription. So far as I know it has never been used as a beverage. Just where the line of division comes in the handling of malt preparations is becoming a puzzle to a great many of our retail druggists. There may be some other articles which may occur to the members present; if so, feel perfectly free to ask our district attorney his interpretation of the article in question."

District Attorney Rush replied:

"I would suggest, Mr. President, that in matters of this kind you are probably all familiar with the proposition that a curbstone opinion of a lawyer is not of much value. The better way to reach that goal is to present it through a committee of your organization to my office, and then we will look the matter up under the law and advise you in writing as to what the law is in that particular subject.

"My offhand opinion would be that anything in the nature of a beverage would come within the inhibition of the law; anything that is strictly medicinal would not. It would depend largely upon the amount of alcohol in it as to whether it is really a beverage or not.

"I think it would be wise for your organigation to appoint a committee to take these matters up and then present them to my office, giving the ingredients of the medicine or compound, whatever it may be, the percentage or proportion of alcohol, or any spiritous, vinous or malt ingredient, and then we can take the matter under consideration of authorities and decisions and advise you with a better purpose."

Mr. Clayton responded, saying:

"The latest remarks of the district attorney make me glad I voted for him. Note the contrast of his offer to give us a written opinion on these questions which we may submit to him, to the treatment which was accorded us by another officer of the state, who told us that it was his business to interpret the laws only for the officials of the state and not for private individuals or interests. To find an answer to our questions, he advised us to bring a suit in the courts and we would ultimately be answered. We tried it. When we got through we did not know any more than when we began, as in the final opinion of the court many of the questions were not answered at all. There are a number of questions on which some of the members here would like to be informed.

"A druggist in a dry territory may only sell upon the written prescription of a physician, but we have not heard whether there is a distinction in the state law as between those who sell on prescriptions and those who do not. The question in the minds of many of us is as to whether we have a legal right to sell alcohol for rubbing purposes to patients, when stated that it is not for

beverage purposes; however, of such a nature that it is capable of being diluted for beverage purposes if the purchaser were so inclined. These points, and no doubt others, occur to the minds of those present and we would like to have them answered. We feel, many of us, that it ought to be the business of the officers of the law to help us obey the law and not leave us in ignorance of the law until we are prosecuted. This condition in the past has sometimes made us feel that we were in reality victims of the law."

"I am a druggist located in dry territory," said Mr. Alkire, "and quite understand the position of a druggist in such territory, but I am not exactly clear as to the position of a druggist in wet territory. Do I understand you, Mr. Rush, to say that he has the privilege of selling liquors in any quantity that he desired so long as he obeyed the closing hour feature of the law?"

Mr. Rush answered: "I will say in answer to your question that this druggist would have to get signers under the law, the same as the saloon man."

President Hover asked: "Would he be compelled to observe the hours of closing and also keep closed on Sundays?"

"Strictly speaking, that would be true," replied Mr. Rush; "but the idea of my office at present would be to apply the same ruling to him as to cafes, restaurants, etc., enforce the law as to the sale of liquor, not as to the closing of his place of business. The strict letter of the law would cause us to close every hotel and cafe, under the decision of the Supreme Court that every place that retails liquor is a saloon. But I feel that the purpose of the law is to stop the sale of the prohibited product during those hours, and not stop the transaction of other business conducted in connection with it. I have assured hotel men, and kindred lines of business, that if they stop the sale of liquor at midnight and on Sunday they may still conduct their business for other purposes. The same ruling will apply to drug stores."

"Mr. District Attorney," said President Hover, "I think we will undoubtedly carry out your suggestion of formulating certain questions that will be presented to your office for ruling. One of those, as suggested by Mr. Clayton, is the sale of alcohol There is a great deal of grain alcohol used by druggists of this city and elsewhere for manufacturing purposes, and also for household use, and used in a perfectly legitimate way. I know of no instance where alcohol is used in this territory and manipulated or worked up in a form that can be used as a beverage, for the reason that it is almost impossible for the layman or consumer to utilize the alcohol in such a way as to produce a desirable beverage. In only one section of this country that I know of was alcohol sold largely as a beverage, and that was in certain portions of Minnesota and Wisconsin in Swedish and Norwegian communities. They used to buy alcohol and by process of dilution produce a form of beverage."

"Cannot some ingredient be put into alcohol that would not injure it for its legitimate purposes and yet make it unavailable for dilution as a beverage?" asked Mr. Rush.

"For external purposes it can be," replied President Hover, "but for internal purposes grain alcohol could not be so treated. Alcohol for external purposes only could be so denatured as to render it impossible to work it up into a beverage."

The question of the ownership of a prescription was brought up and Mr. Bresler stated that there were court decisions on record deciding that it belonged to the druggist, while in other cases it had been decided that it was the property of the patient. Mr. Rush stated that under the law, prescriptions calling for narcotics must be kept by the druggist.

President Hover then called on Mr. E. L. Scholtz for some remarks on the liquor and cocaine question, whereupon Mr. Scholtz spoke as follows:

"I have nothing that would add anything to the value of the information given by the Honorable District Attorney this evening, and I believe that what I know all of you already know. But there are some things that seem unfair in the prosecution of our business in Denver, and it has always been so, I guess, ever since I have been in business. I believe the District Attorney and you all know where I stand on the enforcement of law. I have placed myself pretty squarely on record and am not afraid of that position. But the inequality of the administration of the laws of the city and even of the state have been so directly at variance with what is fair, that I have sometimes sat down and kept still because it did no good to go to the officers who are supposed to administer the laws; therefore, when a situation like that presents itself there is very

little for the ordinary citizen to do. All of us present here tonight know that you can buy all the cocaine you wish and nobody interferes with the sale of it. Mr. Rush has said that he has no one in his office to look up the offenders. The police department of the city of Denver have been absolutely and utterly disregarding the law since it has been upon the statutes. There has been a constant violation of the laws, and it has been known at the city hall. It has been reported to them over and over again, but they do not care about it. There are special favorites of the police department who are permitted to go on selling cocaine. There are druggists in the dry territory of Denver who pay no license, but who sell all the beer, wine and whiskey the neighborhood desires, and nobody seems to take any cognizance of the fact. The druggists down town know it, the police department and city hall officials know it, but they do not care to enforce the law. Of course, it is said that if you go out to take evidence and thereby become a party to the offense, there is no offense committed. This has been the usual plea why they cannot get at the offenders. It is certainly unfair to those of us who are square and above board and pay a license, that we cannot have the protection that absolutely belongs to us. It seems that we simply have to accept the situation as it is and let the other fellow go his way, while we do what we know is right. But there are violators, men who are in the business for another purpose—to make money out of unfortunates of this life. Mr. Rush, you know as well as we all do, that if cocaine were not sold in Denver, the county jail would have a great many less victims. Many places exist on Larimer street where you can purchase cocaine in packages, and these places are kept for this particular purpose. It is sold in a disguised way, but the victims themselves can get it very easily. I admit that it is pretty difficult to get at a way to prevent it. Recording the sale of cocaine is one way of following up the users of the drug, but that registration, I fear, is not well done.

Mr. Rush spoke of open gambling. I have gone into the cigar stores or stands in the buildings, and seen them throwing dice just the same as I did in California, where it is an open privilege. But here it is supposed to be absolutely prohibited, as I understand it. Yet it goes on every hour in the day. No one seems to be surprised at it, yet it is an open violation of the law. I think the same law should apply to all of us, not only to the druggists, but to the saloon men, bottling men, etc. It is well known that you can get a drink if you want it on Sunday. I hate to see too much reform going on all at once; business is not good in Denver at the present time, but if a law is on the books, it should be enforced or taken off the books. I should like to see the police enforce the law.

"One question I would like to ask: You said that the law of the state requires a license of $600 for the saloon man. Is not that a city law instead of a state law?"

Mr. Rush answered, "It is a state law, but applies to all cities or incorporated towns. Cities can make it more, but not less."

President Hover then spoke as follows:

"You can rest assured, Mr. District Attorney, that all reputable druggists want to live up to the law, and moreover, they want to see this cocaine and morphine habit killed. I know of no druggists who want to sell morphine and cocaine, and you can have the cooperation of all the druggists of this city who are worthy of the title. If we can have the protection we deserve, we will appreciate it. If the other fellow does not have the special privilege we do not want it ourselves.

"In regard to the sale of cocaine, this is one of the things that cannot be regulated by the state itself; only national regulation will prohibit its sale properly. While we have a state law, necessarily there is nothing in that law that will prevent any retailer, or any physician, or any consumer from purchasing cocaine outside of the state and shipping it in. I am convinced that cocaine should be prohibited from importation into this country entirely, as its advantages are so slight when compared to the destruction it works, and if the evil continues as it has in the past, I think that is where the matter will finally land."

The liquor license and narcotic questions were further discussed, Messrs. Bresler, W. O. Scholtz, Rush, Hover, Clayton, Cole, Alkire and others taking part. On the question of what was to be done with the licenses held at present by druggists, hotels and cafes for the sale of liquor as permitted by the city ordinance, claimed to be in conflict with the state law, District Attorney Rush stated that for the unused portion of these licenses the money probably would be

refunded by the city. At least he considered this the only fair settlement.

Delivery of liquors into dry territory was also touched on, Mr. Rush citing several cases of peculiar circumstances and their decisions.

After the discussion had ended, Mr. Best moved the appointment of a committee of five to formulate the questions to be presented to District Attorney Rush. This brought up a discussion as to whether it would be best for the branch to handle this matter alone or invite the city association to cooperate. Mr. Alkire, president of the city association, expressed the belief that that body would be glad to help the branch in this matter and would probably have their legislative committee, of which Mr. Bresler was chairman, act in this capacity.

The motion before the house was therefore withdrawn and a motion by Mr. Wilson substituted in which it was moved to appoint two members of the branch to act with the city association legislative committee on this matter, Mr. Alkire having assured the branch that this would be agreeable to the city association.

President Hover then appointed Messrs. E. L. Scholtz and A. W. Clark to serve on this committee.

After a motion by Mr. Best, seconded by Mr. Martin, to extend a vote of thanks to District Attorney Rush, the meeting adjourned.

The next meeting will be held Tuesday evening, December 16, and officers for 1914 will be nominated at this meeting.

F. W. NITARDY, Secretary.

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CHICAGO BRANCH.

October Meeting.

The first monthly meeting for the season of 1913-14 of the Chicago Branch of the American Pharmaceutical Association was held at the School of Pharmacy of the University of Illinois Tuesday evening, October 21st.

The discussion of the evening turned upon Alcresta, the name by which Professor John U. Lloyd designates a colloidal substance separated from certain clays and which possesses the peculiar property of absorbing alkaloids from an acidified aqueous solution and presenting then in a quite tasteless form, probably insoluble in the stomach but readily soluble in the intestines.

Professor A. H. Clark demonstrated this property of Alcresta and spoke as follows:

"This reagent is a hydrated aluminum silicate and is said by Professor Lloyd to be obtained from certain clay and earth, most abundantly from Fullers earth. It posessses the property of combining with alkaloids in a medium quite strongly acid. This can be readily shown by dissolving a small quantity of quinine in acidulated water. The presence of an alkaloid is clearly shown when we add to a portion of this solution a few drops of Mayer's reagent. Upon shaking the alkaloidal solution with a few grams of Lloyd's reagent, then filtering and adding Mayer's reagent to the filtrate we find that no precipitate forms in the filtrate. Every trace of alkaloid is held on the filter with the reagent. Another striking feature is the fact that upon washing the material on the filter free from acid we find that it has none of the bitter taste peculiar to quinine, neither can the quinine be washed out in appreciable quantities by acidulated water. The combination can be readily broken up by an alkaline liquid such as ammonia water and the alkaloid removed by such solvents as chloroform, ether, etc.

These peculiarities of this material may lead to varied and valuable uses. The possibilities in the way of extracting alkaloids from drugs either in the process of manufacture or of assay are many. From a therapeutic standpoint the tasteless nature of the alkaloidal combination suggests many possibilities, and it is my opinion that this discovery of Professor Lloyd's is one of the most important and valuable in this line made in recent years."

In the discussion of Professor Clark's demonstration, Dr. Bernard Fantus, Professor of Pharmacology at the University of Illinois College of Medicine, stated that it had been his good fortune to have made the acquaintance of Alcresta alkaloids prior to the meeting of the American Pharmaceutical Association at Nashville. He had experimented with them to determine their suitableness for "candy medication," and found that thanks to them even the alkaloids could be included in the candy materia medica, and presented at the meeting Sweet Tablets of Alcresta

Strychnine, gr. 1/200, made after the following formula:

Alcresta Strychnine, 5%...	10	grains
Saccharin	1	"
Vanillin	1	"
Cacao powder.....	50	"
Powdered sugar.....438		"

Make into 100 five-grain tablets.

They were very nice in appearance and palatable, there being but a slight taste of bitterness, no more than is usual in bitter chocolate. In this manner one of the objections that was raised to Dr. Fantus' idea of candy medication for children "How about the alkaloids" has been overcome.

As to the activity of Alcresta Strychnine there can be no doubt, for it will kill a dog in convulsions. Dr. Fantus, however, could not agree with the statement that the Alcresta compound was more active than the uncombined alkaloid. It seemed to him that the effects appeared later than is usual in strychnine poisoning. He has not yet determined the relation of the minimum fatal doses of Alcresta Strychnine to strychnine sulphate, but intends to conduct such experiment shortly.

Dr. Fantus is at present engaged in a study of some of the other therapeutic uses of Alcresta and its compounds and hopes to be able to report upon results in the near future.

As to the chemistry of Alcresta compounds with alkaloids it is believed that we have to deal with an adsorption compound due to the colloidal nature of Lloyd's reagent and its negative electrical charge which causes it to attract the positively charged alkaloidal ions. The combination seemed reversible, at least, in neutral and in alkaline medium.

In this connection he also stated that the study of colloidal chemistry ought to be taken up by our association, inasmuch as some well-known pharmaceutical facts have received a new interpretation from this most recent study, and as this new field promises to yield some possibly very important innovations in pharmaceutical theory and practice.

He referred to Nitardy's demonstration, at the meeting of the American Pharmaceutical Association at Nashville, of calomel suspension made stable by the presence of minimal quantities of acacia, as an example of the importance of an understanding of colloidal chemistry, for the explanation of this phenomenon lies in an understanding of the meaning of "protective colloid," i. e., a colloid, minimum quantities of which suffice to impart stability to unstable colloidal suspensions.

Mr. F. P. Summers, Chief Chemist of the Abbott Alkaloidal Company, also spoke of his experiences with Lloyd's reagent. His efforts were confined to the commercial aspect of the application of this precipitant. In the manufacture of the alkaloids where the menstruum used is acidulated water, the speaker suggested that this reagent might be very efficient. However, in those cases where the drug is treated with alkali and then extracted with immiscible solvents, the use of Lloyd's reagent appears to introduce an unnecessary step in the operation.

As the reagent has been also suggested as a means of producing tasteless but still efficient alkaloids, a series of experiments on dogs and guinea pigs with the strychnine precipitate were conducted by Mr. Nielson, of the Pharmacologic department of the same company, to test the pharmacologic action. The results indicate that this precipitate is more slowly absorbed than the corresponding amount of strychnine sulphate. To one set of dogs was given the minimal lethal dose of strychnine sulphate. To another set was given the same amount of alkaloid in the form of Lloyd's precipitate. In the latter case toxic action was considerably delayed.

In conclusion, it was suggested that as a means of overcoming emulsion troubles in assay work, this reagent should offer much promise. E. N. GATHERCOAL, Secretary.

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CHICAGO BRANCH.

November Meeting.

The regular November meeting of the Chicago Branch of the American Pharmaceutical Association was held at the University of Illinois School of Pharmacy building, Wednesday evening, the 19th.

The subject of the meeting was "General Principles of Pharmacy Legislation." The members of the State Board of Pharmacy and the president and members of the executive committee of the Illinois Pharmaceutical Association were invited to be present.

The following general statement was presented in typewritten form to each one present and became the basis of the discussion: "1. Pharmaceutical legislation, though framed by pharmacists and secured only

through their organized efforts, must primarily be intended to provide efficient pharmaceutical service for the public. 2. Such legislation must control the traffic in habit-forming drugs and safeguard, so far as possible, the handling and employment of poisons and potent remedies. 3. Concessions must be made so as to permit dealers other than pharmacists to supply, under proper restrictions, such poisonous substances as are used largely in the arts. 4. Standards covering school and drug store training should be provided for three grades of certificates—apprentice, assistant and pharmacist. 6. Boards of pharmacy should have full supervision of all matters within the state relating to the handling and sale of drugs and medicines. By cooperation with other state departments, facilities for analyses could be provided. 7. By cooperation with the state department of education, trained experts should be provided to conduct the examinations, but directly supervised and controlled by the board of pharmacy. 8. Appointments of board members should be made upon the recommendation of state pharmaceutical association."

James H. Wells, president of the branch, presided, and called upon Editor George Englehard to lead in the discussion. Mr. Englehard expressed himself as substantially in accord with the statement of principles as presented to the meeting. He referred to the part he took in the drafting of the original Illinois pharmacy law, adopted in 1880, and stated that it was based on a model law proposed by the A. Ph. A. previous to that time. He brought out the point that an endeavor was made in this original draft to provide for the election of the members of the board of pharmacy by the pharmacists of the state, but such provision, it was shown, would be unconstitutional, and that the members of the board must be appointed by the governor. He declared that board members in all the states were, to a more or less extent, political appointees, and that if pharmacists had the power to elect the administrators of the law, the condition of pharmacy in the several states would now be ideal.

Mr. Engelhard also discussed the question of college prerequisites before examination, and stated that no such requirement should be included in the law itself, but educational requirements, as well as the character and methods of examination, should be left to the discretion of the board. If conditions in pharmacy have reached such a state that a course in a college of pharmacy is essential to the proper qualifications of a pharmacist, well and good, let the board so rule.

He criticized severely the provisions of the law permitting physicians to dispense and held that qualified pharmacists alone should dispense medicine, and then that pharmacists should be responsible for all medicines so dispensed. In this respect he is completely in accord with the principles laid down by the Drug Reform Committee of the A. Ph. A., and further stated that the doctors were to the very front in fighting for pure food and drug legislation, but now, through the dispensing physician, 75 percent of the medicines dispensed in this country do not come within the scope of these laws.

Secretary T. H. Potts, of the N. A. R. D., was the next speaker and stated emphatically that the state boards of pharmacy have no right, nor should they have a right, to make regulations concerning the qualifications of candidates for the examination, but these qualifications should be definitely stated in the law. He spoke strongly in favor of the prerequisite requirement and wanted to know how we are ever going to place pharmacy on the footing where it belongs if we do not require an adequate and advancing education of those entering pharmacy. He referred to the successful U. S. P. and N. F. propaganda work among physicians.

Secretary Isam Light, of the C. R. D. A., also spoke of this propaganda work and stated that one of the great difficulties of the work was the indifference displayed by the retail druggists themselves. He further stated that, as a rule, those who were indifferent were not college graduates, and that the main cause of the indifference was their incompetence to properly prepare the U. S. P. and N. F. preparations. Mr. Light said that if the prerequisite clause was inserted in our pharmacy law, we would have more capable pharmacists in Illinois within a short time.

Ex-President W. B. Day spoke in favor of the prerequisite clause. He brought out the point that at present druggists did not teach pharmacy to their apprentices as in former years, and while drug store experience still had much value in the training

of a pharmacist, yet candidates for registration should now be required to show some systematic effort to qualify in pharmacy before being admitted to examination.

Mr. Wm. Gray, pharmacist at the Presbyterian Hospital, spoke of the difficulties of the apprentice acquiring a competent education from drug store experience alone and favored the prerequisite requirement.

Mr. Wells, speaking from his own experience, told how he had very successfully passed the board examination (a considerable number of years ago, however,) after a very limited experience of running errands in a drug store, followed by three months cramming. He then spent ten years as apprentice and clerk acquiring a true pharmaceutical education. He referred to apprentices nowadays, who knew nothing of scientific or ethical pharmacy, who, after a three months' course in one of these stuffing schools, successfully passed the board. He pointed out that such an "education" evaporated almost as rapidly as it was acquired, and urged that, when the prerequisite requirement was placed in the law, it be so worded as to require a reasonably complete and broad education, general and pharmaceutical.

Professor A. H. Clark presented several examples from his own experience of insufficiently educated pharmacists, particularly one instance in which the physician ordered a prescription calling for 1/60 gr. strychnine tablets, to be refilled, but with tablets only half as strong. The drug clerk dispensed 1/30 gr. strychinine tablets.

Mr. Brunstrom, of Moline, chairman of the Legislative Committee of the Illinois Pharmaceutical Association, urged upon all Illinois pharmacists unity in backing the desired amendments to the pharmacy law; that the law had enemies enough among the "patent medicine" and "wagon" men and that we must have the unanimous support of the pharmacists.

President Ralph E. Dorland, of the Illinois Pharmaceutical Association, closed the discussion. He stated that the I. Ph. A. stood solidly back of the fight for amendments to our present state law in favor of prerequisite college education, the labeling of medicines with name and amount of each potent drug contained in them, and the restriction of the sale of all powerful medicines to registered pharmacists. He said further the salvation of pharmacy in every state lies in right legislation. To obtain legislation, cooperation is essential. The pharmacists of the state must write and present a solid front in their state organization.

A pleasing and instructive incident of the evening was the display and demonstration of oxygen apparatus, especially pieces designed for anaesthesia and for life saving, by representatives of the Roessler & Hasslacher Chemical Company.

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NORTHWESTERN BRANCH.

The fall meeting of the Northwestern Branch of the American Pharmaceutical Association was held in the main lecture room of the new pharmacy building, University of Minnesota, Minneapolis, on Wednesday afternoon, November 19, 1913. The meeting was called to order at 2:40 p. m. by Mr. Stewart Gamble, president of the branch, and the following program was taken up:

1. Minneapolis' New Narcotic Ordinance, by Mr. C. H. Huhn.
2. Discussion on the U. S. P., IX, opened by an abstract of the work of the Committee on Botany and Pharmacognosy, presented by Dr. E. L. Newcomb.
3. The New College of Pharmacy Building, Dean F. J. Wulling.
4. Inspection of the New Pharmacy Building and Medicinal Plant Laboratory.

In discussing Minneapolis' new narcotic ordinance, Mr. Huhn dwelt at some length upon the history of narcotic legislation in Minneapolis and in a more general way throughout the United States. The speaker referred to the important work which has been done and is being done by the American Pharmaceutical Association and N. A. R. D. along legislative lines. He emphasized the need of not only membership in both organizations, but of active affiliation. After continual fighting for many months, and a number of interviews with the city mayor, who is himself a retired retail pharmacist, the Minneapolis pharmacists succeeded in securing the passage of a narcotic ordinance which they believe will be for the best interests of the physicians, the pharmacists and the public, and much to be preferred over the original ordinance introduced into the city council without consultation with the pharmacists, by a council member. The narcotic ordinance includes restrictions and requirements applicable not

only to pharmacists, but also to practicing physicians, veterinarians, dentists and dispensing physicians. Mr. Huhn answered a number of questions on the various requirements and the matter was further discussed by Messrs. Allen, Tupper, Wulling, Thompson and others.

In opening the discussion on the U. S. P., ninth revision, Dr. Newcomb first referred to the number of vegetable drugs which have been recommended for deletion by the committee on scope and also to the number which have been recommended for addition. Attention was called by Mr. Gamble and Mr. Rauch to the extensive use of Phytolacca by certain physicians. Santonica and Catechu were referred to by Dean Wulling as illustrating how certain drugs may be dropped from the Pharmacopoeia on account of the inability to secure satisfactory supplies, and later be reinstated when new supplies become available. Mr. Allen questioned the advisability of dropping Styrax, since its use occurs in the preparation of Tinctura Benzoini Composita. The general changes in what should constitute a monograph for a vegetable drug in the U. S. P., as indicated by the report of the Committee on Botany and Pharmacognosy, were next taken up. Dr. Newcomb called particular attention to the definitions which state in every case, where essential, the amount of stem or other more or less inert parts which will be permitted. The introduction of commercial drug names was commented upon favorably, as was also the indication of the habitat of plants yielding drugs of which the species is held in question. The elimination of statements concerning the time of collection, where not substantiated by research, was considered to be a step in advance. These fundamental changes in connection with the addition of synonyms, it was felt would be a great help to the federal authorities in keeping drugs of poor quality out of the U. S. Attention was called to the extended outer morphological descriptions, which are not only exceedingly complete in detail, but also include descriptions of those parts which may be present in limited amounts. The introduction of descriptions of microscopic sections of drugs was pointed out as affording not only a ready means of identification, but also as a means of distinguishing between closely related species (and this frequently) where all other methods fail. The descriptions of powdered drugs, both physical and microscopical, were commented upon, and a number of the more important ones were read to indicate the completeness of the work. Special attention was called to the large number of simple, easy tests which are presented and which give to the busy retail pharmacist an opportunity with but test-tube, beaker and a few reagents to determine qualitatively, and in many instances quantitatively, the value of vegetable drugs. A number of the more important and potent drug descriptions, such as those of Aconitum, Belladonna, Digitalis, Rheum, Asafoetida, etc., were taken up and studied, the study being facilitated by a display of living plants, drug specimens produced by students, and other drugs, showing adulterations, etc. Special interest was manifested in a specimen representing the root system of Rheum palmatum and showing five large rhizomes from eight to fifteen centimeters in diameter, also the large central rhizome, from whence the so-called "black-hearted" rhubarb is probably derived, and the large roots which are recommended to become official. Upwards of 200 specimens of Digitalis, Stramonium and Belladonnae Folia were exhibited. These were all packed in air-tight, one or two-quart glass fruit jars, the Digitalis being packed with lime. The specimens represented part of the work of students of the college, in connection with which Mr. Newcomb stated that a total of 1030 individual drug specimens had been produced by students, over 900 moisture determinations made, 2600 outer morphological drawings with descriptions completed, 1200 medicinal plants had been potted by students and were being grown in the plant laboratory for further histological work, and that 700 permanent plants had been placed in the garden by students, and that a total of about 6500 specimens had been handled by students during the quarter just closing. In closing the symposium on the Pharmacopoeia, Dean Wulling stated that while the tendency in pharmaceutical revision was toward lessening the number of drugs, at the same time it was for better drugs, for while those drugs of questionable value were being eliminated, standards were being provided for those of known value, which could not help but increase their quality. The consensus of opinion of those present was to the effect

that the adoption of vegetable drug standards along the lines as indicated by the report of the Committee on Botany and Pharmacognosy, would not only keep the U. S. P. among the foremost of the world, but that it would also, by the enforcement of its standards under the provisions of the Food and Drugs Act, raise the quality of vegetable drugs. Among those taking part in the discussion were Messrs. Haynes, Rauch, Frost, Huhn, Allen, Smedley, Gamble, Brewer and others.

At this juncture in the meeting, Dean Wulling introduced Mr. Charles Herbert Rogers, a new member of the faculty of the college of pharmacy, who responded in very well chosen words.

Dean Wulling then, upon request, gave a brief history of the pharmacy building, the medicinal plant laboratory and the medicinal plant garden. He explained how two fire losses of respectively $30,000 and $4000 were, through his persistent efforts, added to a legislative appropriation of $75,000, and that the total of around $109,000 was nearly all expended at this time on the new building and part of its equipment. The new building is 60x115 feet in dimensions, four stories high, entirely fireproof, equipped with the most modern appliances and conveniences, such as hot and cold water, gas, electric current for light and power, steam under pressure, air pressure, steam heat with thermostatic control in every room, metal weather strips and metal window screens, imported washable window shades, vacuum cleaning system operated by a 4-h. p. motor, electric clocks in every room, elevator, intercommunicating telephones. The new furniture, including students' work tables and all other laboratory and office furniture, is entirely of steel, made to order according to drawings furnished by the faculty and costing up to the present around $20,000.

The new medicinal plant laboratory is 38x61 feet in dimensions, with a full basement, in which a complete milling plant is installed, operated by a 10-h. p. electric motor, a 5-h. p. and a 2-h. p. The superstructure for the plant house proper has not only abundant facilities for the housing and growing of medicinal plants, but for laboratory work for sixty students at a time. The dean stated that so far as he knew there was no other similar building in this country. The value of the building, exclusive of the medicinal plants, is around $18,000.

The meeting concluded with a trip of inspection through the two buildings and adjourned at 5:15.

E. L. NEWCOMB, Secretary.

Council Business

COUNCIL LETTER No. 5.

PHILADELPHIA, Nov. 3, 1913.

To the Members of the Council:

Motions No. 7 (*Election of F. I. Lackenbach of San Francisco to Committee on Transportation*), *No.* 8 (*Election of J. G. Roberts as a member of the Committee on Unofficial Standards*) and *No.* 9 (*Renewal of Bond of Treasurer*), have each received a majority of affirmative votes.

Motion No. 10 (*Appropriation of* $250 *for Committee on Membership.*) Moved by J. H. Beal, seconded by J. A. Koch, that $250 be appropriated for the use of the Committee on Membership. The appropriation has been approved by the Committee on Finance.

Motion No. 11 (*Appropriation of* $25 *for Women's Section.*) Moved by J. H. Beal, seconded by J. A. Koch, that $25 be appropriated for the use of the Women's Section. The appropriation has been approved by the Committee on Finance.

It will be recalled that at the meeting of the Council held at Nashville on August 23, 1913, the following resolution was adopted:

"H. M. Whelpley moved, seconded by J. W. England, that the question of increase of salary of the Editor of the JOURNAL be referred favorably to the Committee on Finance and the General Secretary, with power to act, the amount of increase to be determined by the Committee on Finance and the General Secretary."

The Chairman of the Committee on Finance writes that the members of the committee are a unit in favor of an increase, and that the sum of one thousand dollars is satisfactory to all.

Since the committee was given "power to act," it hardly seems necessary for the Council to approve its action, but as no date from which the increase was to take effect has

been mentioned in the original motion, the following motion is submitted:

Motion No. 12 (Increase of Salary of Editor of Journal). Moved by J. A. Koch, seconded by J. W. England, that the annual salary of the editor of the Journal be increased $1000, said increase to take effect as of September 1, 1913.

Motion No. 13 (Election of Members). You are requested to vote on the following applications for membership:

No. 9. Mrs. Hampton Ray Kenaston, B. E., M. E., Bonesteel, South Dakota, rec. by E. C. Bent and D. B. Jones.

No. 10. Ebert H. Wisner, 508 Washington St., N., Valparaiso, Ind., rec. by E. C. Bent and D. B. Jones.

No. 11. John J. Tobin, 243 Dorchester St., S. Boston, Mass., rec. by C. H. Packard and Elie H. LaPierre.

No. 12. William Leon Cummings, 117 Standard St., Syracuse, N. Y., rec. by J. H. Beal and J. W. England.

No. 13. Joseph Pancoast Millikin, Ph. B., B. S., Ph. C., 451 Jefferson Ave., Brooklyn, N. Y., rec. by Ralph C. Holmes and Eugene L. Maines.

No. 14. Lynn Stanford Blake, Auburn, Alabama, rec. by J. H. Beal and J. W. England.

No. 15. Louis Heister, S. E. Cor. 7th and Elm Sts., Cincinnati, Ohio, rec. by John Uri Lloyd and Chas. A. Apmeyer.

No. 16. Samuel Morgan, No. 1 The Dixmont, Dixmont Ave. and Gilbert Ave., Cincinnati, Ohio, rec. by Chas. A. Apmeyer and Fred L. Kotte.

No. 17. John A. Dorjahn, Blue Island, Ill., rec. by W. B. Day and E. N. Gathercoal.

J. W. ENGLAND,
Secretary of the Council.

<>

U. S. PUBLIC HEALTH SERVICE.

LaGrange, J. V., Pharmacist. Granted 2 days' leave of absence from Oct. 13, 1913, under paragraph 214, Service Regulations. Oct. 15, 1913.

Scott, E. B., Pharmacist. Granted 25 days' leave of absence from Oct. 11, 1913. Oct. 8, 1913.

Spangler, L. C., Pharmacist. Granted 27 days' leave of absence from Oct. 29, 1913. Oct. 8, 1913.

LaGrange, J. V., Pharmacist. Granted 3 days' leave of absence from Oct. 23, 1913, under paragraph 214, Service Regulations. Oct. 23, 1913.

LaGrange, J. V., Pharmacist. Granted 4 days' leave of absence from Oct. 29, 1913, under paragraph 214, Service Regulations. Oct. 29, 1913.

Phelps, Earle B., Professor of Chemistry. Detailed to attend the meeting of the National Association for Preventing the Pollution of Rivers and Waterways to be held at Chicago, Ill., Nov. 11-12, 1913. Nov. 4, 1913.

Bell, J. M., Pharmacist. Relieved from duty at Pittsburgh, Pa., and directed to proceed to Savannah, Ga., quarantine station and report to the medical officer in charge for duty and assignment to quarters. Nov. 5, 1913.

Phelps, Earle B., Professor of Chemistry. Directed to proceed from New York, N. Y., to Boston, Mass., and vicinity and advise with local health authorities relative to the conduct of investigations of sanitary administration. Nov. 11, 1913.

LaGrange, J. V., Pharmacist. Granted 2 days' leave of absence from Nov. 14, 1913. Nov. 14, 1913.

BOARDS CONVENED.

Board of medical officers convened to meet at the call of the chairman at Manila, P. I., for the examination of Pharmacist N. C. Comfort to determine his fitness for promotion to the grade of Pharmacist of the first class. Detail for the board: Surgeon Victor G. Heiser, chairman; Assistant Surgeon B. J. Duffy, recorder.

RUPERT BLUE, Surgeon General.

SAME COMPOUNDER PUTS UP FIRST AND ONE MILLIONTH PRESCRIPTIONS.

J. J. Schott, a well-known pharmacist on Market Street, Galveston, Texas, recently put up the one millionth prescription in his store. He had dispensed the first, some forty-five years ago, and arranged to personally put up the one millionth. A strange circumstance is that the first and prescription one million were both by a Dr. Randall; the first prescriber is dead, and the prescriber of the last is his nephew. We think such a rare coincidence is worth noting.—*Practical Druggist.*

BETWEEN LIFE AND DEATH.

Anabiosis, a state where all vital functions of the organism are suspended, without however death occurring, has been known for about 200 years, in the case of some of the lower animals, which can be dried and restored to life, even after a considerable time, merely by the action of moisture.

A Russian scientist, Prof. Bachmetief, has tried to ascertain whether phenomena such as these could not as well be observed in the case of higher organisms. While examining insects at decreasing temperatures, he found that the temperature of their body, after reaching the freezing point of water, would gradually fall as low as 5 deg. Cent. (in the case of some species even 7 deg. Cent.), in order afterward to rise one degree and eventually to continue falling regularly and gradually. Death would only occur at 10 degrees.

Prof. Bachmetief first thought death to be due to the freezing of humors, but he soon found that the humors of insect bodies already freeze at 5 deg. Cent., any vital function becoming impossible at this temperature. At temperatures intermediary between this point and the lethal temperature, a strange condition of anabiosis is produced, the organism being as it were between life and death. Animals in anabiosis have been repeatedly restored to life, even after a considerable time, by a gradual rise in temperature. This condition could be fitly compared with that of a clock with stopped pendulum, the mechanism of which could be, at any moment, started again by a slight impulse given to the pendulum.

These experiments were then extended to the case of some small-sized mammals (bats and white mice), which by the application of artificial respiration, could be reduced to some sort of lethargy, their body standing temperatures too low otherwise to be endured (0 deg. Cent., and less). Further experiments are to be made on higher animals.

The main purpose of the experimenter was to find a safe cure for tuberculosis. Applications of a mainly practical character, calculated to revolutionize some of our habits, are however likewise to be made. As regards the case of tuberculosis, it is well known that the microbes producing the malady will die or lose their powers of reproduction, on being submitted for two or three weeks to a temperature of 6 deg. Cent. If accordingly a patient could be kept at a temperature of, say, 8 deg. Cent., all Koch microbes would be safely killed or else rendered innocuous. On the other hand, Bachmetief is of the opinion that it would be advantageous to reduce to anabiosis, without any need of feeding them, such domestic animals as are unproductive in winter (bees, sheep, etc.), as well as those which are to be transported to considerable distances (cattle, fowls, fish, venison, etc.), in order to restore them to life whenever required. In order to begin with something practical, Bachmetief has applied his method with excellent results to the long-distance transport of caviar.—*Scientific American.*

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Contents for December, 1913

EDITORIAL:
Some of the Objections to the Harrison Bill 1489

SCIENTIFIC SECTION:
Suggestions Regarding the Work of the Scientific Section, 1496—An Improved Form of Kymograph, 1498—Bethabara, 1501—Estimation of Oil of Peppermint in the Spirit, 1504—Phosphoric Anhydride Content of Syrups of Hypophosphites, 1505—Influence of Size and Shape of Bottle on the Assay of Pepsin, 1507—Examination of Medicinal Preparations... 1509

SECTION ON PHARMACOPOEIAS AND FORMULARIES:
Report of the Committee on United States Pharmacopoeia, 1512—Report of the Committee on Unofficial Standards, 1514—The U. S. P. and N. F. in Relation to the Food and Drug Laws..... 1515

SECTION ON EDUCATION AND LEGISLATION:
Report of the Secretary for 1912-1913 1518

SECTION ON PRACTICAL PHARMACY AND DISPENSING:
Drop Weights, 1535—Liquid Shampoo or Toilet Soap, 1537—Notes on the Decomposition of Neo-Salvarsan 1540

SECTION ON COMMERCIAL INTERESTS:
Causes Contributing Success or Failure in Pharmacy..... 1543

SECTION ON HISTORICAL INTERESTS:
The Centenary of the Discovery of Iodine, 1547—Historical Sketch of the Albany College of Pharmacy 1551

PAPERS READ BEFORE LOCAL BRANCHES:
The Eleventh International Pharmaceutical Congress..... 1555

CONTRIBUTED AND SELECTED:
Rapidity of Elimination or Destruction of Strophanthus and Digitalis Glucosides, 1559—Convenient Electrical Water Bath, 1561—Formation and Distribution of Odorous Products in Plants, 1561—Oleoresin of Pseudotsuga taxifolia, 1566—Crystalline Resin Acid from Pinus Sabiniana, 1569—The Practice of Medicine in China 1572

EDITORIAL NOTES:
Wrong Cut Used, 1576—A Different Institution, 1576—Grand European Tour, 1576—American Druggists' Fire Insurance Co..... 1577

OF GENERAL INTEREST:
Our Honorary President, 1578—Roster of Sergeants, First Class, U. S. A., 1581—Eli Lilly Co. Acquire Rights to Lloyd Reagent, etc. 1584

PROCEEDINGS OF THE LOCAL BRANCHES:
New England Branch, 1585—Nashville Branch, 1586—Cincinnati Branch, 1586—Denver Branch, Oct. and Nov. Meetings, 1587—Chicago Branch, Oct. and Nov. Meetings, 1593 — Northwestern Branch 1596

COUNCIL BUSINESS:
Council Letter No. 5..... 1598

U. S. PUBLIC HEALTH SERVICE.... 1599

ANNUAL INDEX:

CHEMICALS
ALKALOIDS
SPECIALTIES
—
SPECIFY

ROCHE

PANTOPON
DIGALEN
THIOCOL
—
ON ORDERS

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Secretary of the Council on Pharmacy and Chemistry
American Medical Association

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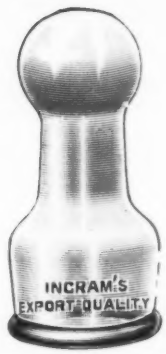

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